

AMERICAN FORESTRY

THE MAGAZINE OF THE AMERICAN FORESTRY ASSOCIATION

PERCIVAL SHELDON RIDSDALE, Editor

JANUARY 1919 VOL. 25

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No. 301



IN THE WASHINGTON NATIONAL FOREST

A beautiful waterfall, with a drop of five hundred feet, on a tributary of the Skagit River

Entered as second-class matter December 24, 1909, at the Postoffice at Washington, under the Act of March 3, 1879. Copyright, 1919, by the American Forestry Association. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 11, 1918.

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"A mighty tree, heir of the forest fair
Transported with its grace and verdure rare.

Star-crowned, it shone radiance divine
And linked the name of Christ with man in hearts ashine,
From lightning, harnessed to the will of man,
Came light and color to perfect the plan,
With art and nature wed to make it fair
The tree was bathed in beauty rich and rare;
One moment shimmering in glorious white
Then colors blending to the soul's delight.

I stood and gazed, my senses filled with joy,
No longer man, but in my heart a boy;
And then I turned, and from the darkness came
A picture of the war and mankind's shame,
I heard the cannonade, the clash of sword,
The awful shrieks that cursed the very Lord,
And then I cried, 'O Christ of Shining Star
Why is Thy peace, Thy power, Thy reign so far?"

I turned again, and blended in the tree,
I saw a vision of the world to be.
I saw the tree a wondrous tree of life
And men forgot their anguish and their strife.
The war no longer raged, and millions came
To take the leaves of healing in Christ's name.

Once more the sick were healed, the lame could dance
And weary men found solace in a glance."

AMERICAN FORESTRY

VOL. XXV

JANUARY, 1919

NO. 301

VICTORY GARDENS!

BY CHARLES LATHROP PACK,

PRESIDENT, NATIONAL WAR GARDEN COMMISSION

WE'VE won the war! Now, keep it won and enjoy the fruits thereof. To do this is going to require continuing effort in order that what has been acquired may be stabilized. Careless relaxation may destroy some of the gains which have been secured.

Much that has been fought for and won with the precious blood of our best and bravest sons, may be lost unless great care is exerted to make the all-important reconstruction days on which we are now embarked and on whose uncharted seas we will be sailing for several years to come, as complete with patriotic effort and conscientious devotion to high duty as the war days through which we passed so bravely and so unflinchingly.

Twenty million tons of food to Europe in 1919! That is the task which has been assigned to the United States as a result of Mr. Hoover's promise to our Allies and the other nations abroad. He knew when he said the word it would be carried out. He knew the American people, what they have done and what they would do.

It is a big order but it will be filled; there is no doubt of that. When that amount was fixed it was the result of careful study of the minimum requirements of America's Allies and the neutrals who are necessarily dependent on this country for a large part of their food supply. Twenty million tons is not all they need, but it is the least amount that will meet their requirements. It was figured out that the American

people without any undue restrictions, without denying themselves to the point of privation, could easily furnish that quantity. It would be well to make it greater if possible, for it would prevent that much more hunger, suffering and starvation in Europe and Asia. It will be

impossible to prevent a certain amount of starvation. This pitiful toll cannot be prevented. Before sufficient quantities of food can be supplied to them from the present diminished granaries of the world, thousands of wretched people who have been near the point of starvation for the past three or four years, will actually have died for lack of food.

The task of America is to reduce this suffering and death to a minimum. Conservation of food will help. But the big problem is to produce. There can be no conservation when there is no production. The war gardeners of the United States have made a wonderful record during the past two years. They can always look back proudly to what they did in the way of increasing the nation's food supplies.

Now they are called on for an even greater task. This phrase, "an even greater task," is used advisedly. There are several reasons why it is true, why

the Victory Gardens of 1919, as the home food producers will now be known, have their biggest year ahead. War gardening has been an evolution, a development. The War Garden was the chrysalis. The Victory Garden is the butterfly. It would be very easy to permit a let

The Fruits of Victory



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National War Garden Commission
Washington, D. C.**

Charles Lathrop Pack, President

P. S. Ridsdale, Secretary

down, in the days of victory, in fact there is grave danger that there will be one. When the "shouting and the tumult die," when the cannon have ceased to roar and when victory is assured, it is so easy to say: "Now we can rest; we have fought and won; there is nothing more to do."

But there must be no slackening. Relaxation may mean ruin. Much of the good that has been wrought may be lost; indeed, worse days may come, days of world-wide pestilence, anarchy and social wreck if famine is allowed to sweep unchecked through the nations. That is why it is more important than ever to keep up the good work, to make the "Victory Gardens" of this year and the next and the next even more numerous, more flourishing, more helpful to this nation and to humanity as a whole, than were the War Gardens of 1917 and 1918. It can be done. I firmly believe that the American people can do greater things than they have ever done before. I am not mistaken about their character and their determination. There were 5,285,000 War Gardens in 1918. Why not make it 10,000,000 in 1919? Let us show the world that we are no "quitters." It's harder to work for something that seems to be accomplished than while the fight is on.

There is, however, another war in progress right now. It is not visible through the marching of soldiers, the bold array of battleships and the reverberation of guns and cannon. But silently, like a thief in the night, the grim monster Hunger is leading his cohorts through the world. Like invisible phantoms, wraiths of the dead, these troops march through town, village and countryside, cutting down women, children and strong men. This is the kind of war in which the world is now engaged. It is the world war for food. It will not be over this year, but it will

last for a number of years, five or ten at least. That is why effort must be made to produce every bit of food possible.

In spite of the fact that there was such marvelous response by the home food growers of the United States last year and that they rounded up the "slack land" in fine shape, letting very little of it escape, it is believed there can be even greater results. This applies both to numbers and to average production. With the training and the experience they have gained during the past two years it is certain that a majority of the "city farmers"

will be able to raise more beans and tomatoes and cabbage than they have heretofore. And as to the number of gardens — that figure, too, should be increased. All that is necessary is for the people in any particular locality to say: "We had 5,000 gardens last year; we'll make it 8,000 or 10,000 in 1919." Every community doubtless will find a certain number of lots which were not cultivated last year. There were some back yards and a few plots which escaped the general round-up. The thing to do is to get them all into the Victory Garden "draft" of 1919. If every city, town and village will make up its mind to work a little harder in 1919 than in 1918, the thing will be done; and after it is over the ease with which it was accomplished will surprise

WAR GARDENS OVER THE TOP



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WASHINGTON, D.C.

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everybody. For instance, Boston set out last spring with the idea that it could reach a mark of at least 15,000 War Gardens. When the count was made it was found there were more than 30,000. There were many similar experiences. That shows that any place can "surpass itself" if it determines to do so.

Plans have been made by the National War Garden Commission for a bigger and more intensive campaign this year than was carried on last season. In order that

results be obtained it is necessary to continue the preaching of the lesson of food need. It is only by keeping the thought constantly before the minds of the people that they can be impressed sufficiently with the importance of the work. They must be reminded again and again, "lest they forget." In the press of other work, in the welcoming back of our soldiers—who deserve every tribute that can be paid them—and in the vast business of reconstruction now occupying so much thought, it is essential to keep the home food production idea to the fore. This is being done. Everybody is urged to co-operate.

With plenty of time in which to prepare and with the experience of the past two years as a guide, the National War Garden Commission already has gone far in getting ready for its 1919 campaign. Thousands of posters have already been sent out, especially through the South where garden planting is under way at the time of this writing. Garden books also have been sent out in considerable quantities, as well as several series of short daily garden lessons for the southern papers, to be printed by them for the benefit of their readers. Soon the work will be in full swing throughout the entire country.

Several handsome new posters have been prepared by the Commission and will be used in this year's campaign, along with the beautiful and striking "Sow the Seeds of Victory" poster by James Montgomery Flagg which inspired so many home food producers and attracted so much favorable comment last year. The new designs, one of them entitled "War Gardens Over the Top," and the other, "War Gardens Victorious," are the work of the well-known artist, Maginel Wright Enright. They show the Victory Gardener leading his vegetables on to the conquest of the new world enemy, General Hunger. Instead of a "muni-

tion plant," this year it will be: "Every Garden a Peace Plant." The gardening books to be distributed by the Commission this year, the majority of them already off the press and ready for shipment as called for, are of more attractive and durable form than last year. Improvements have been made in the contents of the book, and they have heavy covers with the Flagg poster on the front in colors.

One of the Commission's representatives, Everett H. Kelley, is now on a tour of the country which has taken him through a large part of the South and will carry him

on to the Pacific Coast, up into the Northwest and all through the Central West. In urging the importance of greater food production "F. O. B. the Kitchen Door," he is conferring with various officials and committees in the cities and towns he visits; and he is illustrating what was done last year by moving pictures which he carries with him showing war gardeners at work. He is accompanied by Mrs. Kelley, who is helping to spread the message. Several other representatives of the Commission will start on tours of the northern parts of the United States in the near future.

Among those who will take an active part this year in stirring up Victory Gardening are the agricultural agents of the United States Railroad Administration. J. L. Ed-

wards, who is in general charge of this branch of the service, has called on the regional directors and the supervisors of agriculture of the different lines, to give this work their careful attention; and as a result the agents are making extensive plans for aggressive work and showing much enthusiasm. Typical of letters received by the Commission is that from B. F. Bush, regional director, Southwestern Region, who says: "I wish to state that the railroads in the Southwestern Region will again

War Gardens Victorious



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Every War Garden a Peace Plant—

— Charles Lathrop Pack, President.

NATIONAL WAR GARDEN COMMISSION

WASHINGTON, D.C.

do everything they possibly can in permitting their right-of-way and other station grounds to be used for farming and agricultural purposes;" and from N. D. Maher, regional director, Pocahontas Region, who says: "We will have our agricultural agents co-operate with you in connection with spreading the message of Food F. O. B. the Kitchen Door. There is no doubt that, with all the people to be fed in Europe, the Victory Gardens are as important as the War Gardens." Mr. Keiley is interviewing a number of these officials and arranging plans for further co-operation. The railroads actively supported the War Garden campaign; they will assist equally the Victory Garden campaign.

P. S. Ridsdale, secretary of the Commission, has just been in England attending a War Garden conference with food officials there. While the purpose of his trip to Europe was primarily in the interests of the American Forestry Association, he took occasion to visit the British Isles to offer continued co-operation on the part of the National War Garden Commission in the work of home food production which they are doing abroad. At the same time he has been investigating

methods employed there, particularly relating to gardening by the wounded and recuperating soldiers around hospitals. It is believed that much can be accomplished along that line in the United States this year. Just as it did last year, the Commission again in 1919 will offer

any assistance it can render to foreign countries in stimulating city farming.

That they are recognizing everywhere the greater need there will be for food in 1919, and that preparations are being made for the campaign, is shown by numerous reports to the Commission. The signing of the armistice did not stop the requests Register Webster, of Brooklyn, was receiving for garden permits for next season; and he already had granted more than a thousand such permits. Only one person who had given consent for the use of his land, he says, has withdrawn such permission because the war is over. "Everybody seems to understand," says Mr. Webster, "that the food situation



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LIBERTY SOWING the SEEDS of VICTORY

will be just as acute next year and the applications for War Gardens are pouring in just as steadily as if the war were still on." The value of gardening will be emphasized this year in connection with the "Own a Home"

Victory Edition 1919

HOME
CANNING & DRYING
of Vegetables & Fruits

Published by
National War Garden Comm
Washington, D.C.

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THE KAISER IS CANNED—CAN F

idea which real estate dealers all over the United States are taking up and preparing to push with all vigor now that building operations can go forward with increased speed.

That many cities and towns are alive to the needs of the future and the demands for service that will be made upon them, is evidenced by reports which the Commission has been receiving during the past month or so. They are asking for advice as to the plans for the coming year; and in many cases state that they have been busy during the fall and winter in going over their experiences, comparing notes and trying to discover where they have made mistakes and how they can correct them this year so as to improve on their past record. Here is a letter from Urbana, Illinois:

"We have already begun to make plans and get ready for another year. We have a feeling here that the garden should be placed upon a

permanent basis for educational and community purposes and should be made the concrete and objective means of encouraging health, thrift and industry. We have established central offices or headquarters and are now"—this letter was written November 25—"holding frequent meetings and gaining much useful knowledge from an exchange of experiences. The women have taken great interest in the work.

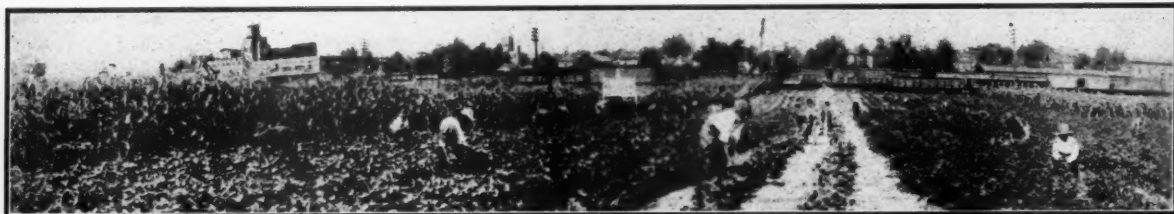
"Personally I have great faith in the influence of the garden as a means of social unity. It should form the foundation for close community organization which should make for individual and local efficiency. This in turn makes for individual prosperity and happiness and means state and national efficiency. The garden with related topics of health and industry appeals to everyone. I vote with both hands to keep and prosper the garden while we have it and so extend and enlarge its scope and vision of usefulness as to make it the means of that

Victory Edition 1919

WAR GARDENING
and Home Storage of Vegetables

Published by
National War Garden Commission
Washington, D.C.

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social unity that will mean better life for everyone."

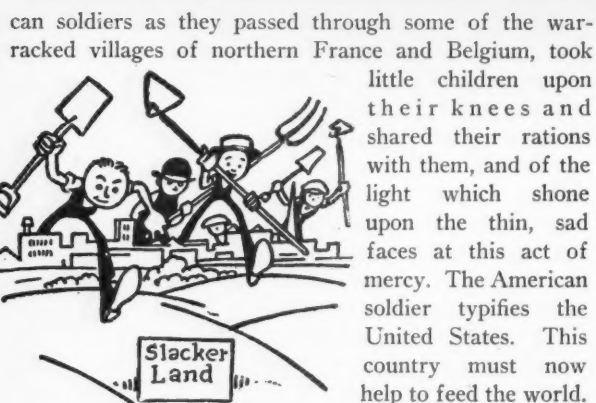
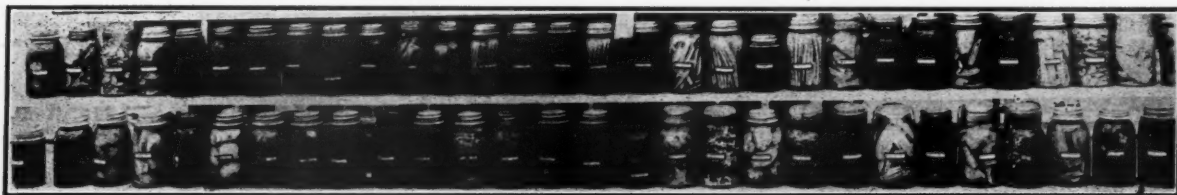
Now if everybody else will "vote with both hands" to continue the garden movement and make it a permanent institution, the problem will be solved. We will have the 10,000,000 Victory Gardens for which we hope. What that will mean to the world cannot be told! It will be impossible to determine the number of lives that may be saved, the suffering and deprivation that will be avoided and the happiness and joy that will come to thousands upon thousands of poor people abroad whose daily bread is of meager quantity and wretched quality. Reports have told how the Ameri-



THE PARADERS

more than any other nation to hold in check and finally crush altogether the terrible foe, Hunger. Mr. Hoover has said there will be seven years of world food shortage. This must be reduced, if possible.

Let the Victory Gardeners now line up! Let them see this war through to a glorious conclusion. Let their motto be: "We have just begun to fight." That speaks the true spirit of America. That was the impulse which sent the boys through at Cantigny and at Chateau Thierry, at St. Mihiel and in the bloody Argonne. The memory of these deeds must be an incentive and an inspiration to every man, woman and



come the Joseph of the Modern World. He must try to stave off the "seven lean years." We alone can do

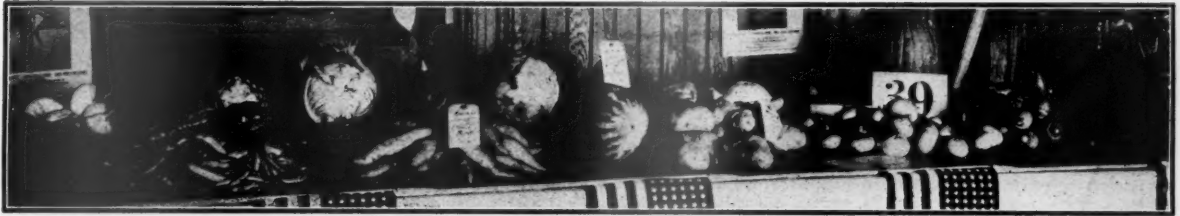
child in the United States. There can be no finer tribute to the nation's heroes than to make real and lasting the victories for which they died.

In a sense every home garden planted in 1919 will be a monument to the American fighter and to the service he performed in helping to establish firmly for the benefit of all mankind the undying principles of Liberty,



Truth and Justice. Every individual, every organization, every community that encourages others or actively





assists in increasing home food production in the United States this year, can feel that it is an act of the truest and deepest humanity.



Said a recent dispatch from the other side: "The enthusiasm in the first flush of allied victory is now giving way to a realization of the appalling conditions and the actual needs of the millions in Belgium and northern France."

Anxiety over the food situation was said to be paramount. That is the question which is of first importance. Once it is solved, other economic and social problems in connection with re-

construction will be well on the way to taking care of themselves. One of the finest and most inspiring slogans which helped the American Army in the carrying through of some apparently impossible war tasks was—"It can't be done. We'll do it." Put that into effect in the home food campaign of 1919.

All the world—that is, all the world worth mentioning—loves a winner. That is why they praise and honor the men who "do things." Is it worth trying to reach that goal of 10,000,000 Victory Gardens? "It can't be done? Let's do it!"



Prize winning exhibit of the Trinity Methodist Church Canning Club at Meriden, Connecticut. This display scored 93 out of a possible 100 points.



This blue-ribbon entry won the National Capitol Prize Certificate offered by the National War Garden Commission; also a prize from the local chamber of commerce.

UNDER THE SUPERVISION OF SIDNEY A. EDWARDS, AGRICULTURAL AGENT OF THE CHAMBER OF COMMERCE, MERIDEN, HAD ONE OF THE LIVELIEST WAR GARDEN AND CANNING CAMPAIGNS IN THE COUNTRY. IN ITS WAR GARDENS THE CITY RAISED ABOUT \$100,000 WORTH OF ITS OWN FOOD. THIS MEANT MUCH IN A CONGESTED MANUFACTURING DISTRICT.

ROOSEVELT THE CONSERVATIONIST

Theodore Roosevelt is dead, but his spirit, his example, live after him, and will ever be a strong influence for better individual and national life. We have lost a great leader in a crisis in the nation's life, a leader who always placed the people's interests before all others, a leader who defended his country, arms in hand in war, freely offering his life, as have his sons in this war and as he himself tried to do. His death at this time is a national calamity, depriving the nation of his wise counsel, his conscientious and courageous leadership, which feared nothing so much as wrong or failure to do his duty. His life, his ideals, his accomplishments will always be an inspiration to those who see in service to humanity, in unselfish endeavor and in duty done, life's best reward.

His voice is silent, but his influence for good lives on. His spirit will march in the van of our armies in war, and in peace it will strengthen our righteous efforts.

True patriot, model citizen, devoted husband and father, wise leader, best type of American, such was Theodore Roosevelt—the world can ill spare him.—Leonard Wood.

CONSERVATION never had a truer friend, a more hearty advocate and a stronger supporter than Theodore Roosevelt. It was he who gave the movement the great impelling force which placed it in the forefront of the nation's big problems. Through his wise foresight in recognizing the vital importance of this subject and his energy in furthering discussion of the question, conservation became what it deserved to be, one of the leading thoughts in the mind of the entire nation.

It was through the first historic Conference of Governors called by President Roosevelt in May, 1908, that there was brought into existence the first concentrated and nation-wide effort to place the conservation movement in the important position which it has occupied ever since. This conference gave dynamic and concrete being and national life to a topic which had been discussed for some years previously. The powerful personality of President Roosevelt and his strong endorsement and virile utterances gave to the conservation movement a firm place among the problems with which the nation had to grapple.

In his address at the opening of the First Conference of Governors, President Roosevelt said: "The prosperity of our people depends directly on the energy and intelligence with which our natural resources are used. It is equally clear that these resources are the final basis of national power and perpetuity. Finally, it is ominously evident that these resources are in the course of rapid exhaustion." Further he said: "Flood prevention, water power development, preservation of



Theodore Roosevelt

We shall recall him as "that tower of strength
That stood four-square to all the winds that blew."

the soil and improvement of navigable rivers are all promoted by a policy of forest conservation." Again expressing himself on this vital theme, he said: "The preservation of the forests is vital to the welfare of every country. China and the Mediterranean countries offer examples of the terrible effect of deforestation." In numerous speeches and in messages to Congress he did not fail to impress strongly upon the people of the United States the need for the future prosperity and well-being of the country of adopting measures looking to proper saving along with proper utilization of all natural resources.

It is eminently fitting, therefore, not only that the memory of what Mr. Roosevelt has done in arousing the thought of the country on this subject should be honored, but that there should be some concrete and lasting evidence expressive of the nation's gratitude for his services to mankind in this direction. It has been proposed by the American Forestry Association of which organization Mr. Roosevelt was formerly vice-president, that this take the form of nation-wide planting of memorial trees and the naming of a great national highway in honor of Theodore Roosevelt. He did more than any

other man to perpetuate the forests of America. In speaking of this tribute to the great conservationist, Charles Lathrop Pack, president of the Association, said:

"No finer tribute can be paid the man who did so much to awaken the country to the value of our national resources. Knowing him as I did, I know he would approve most heartily of the planting of memorial trees—a living lesson of that which he sought to teach."

Trees for Memorials

JUST the other day Mrs. Louis Boex of Cincinnati planted a silver maple in honor of her son Louis, who was a gunner on the *Ticonderoga*. The state of Indiana is urging memorial groves in each of her ninety-two counties. The state forester of Massachusetts suggests that memorial forests be planted. Another plan urges the employment of returning soldiers in planting such forests. Thus has the suggestion by the American Forestry Association that memorial trees be planted in honor of the sailors and soldiers, who gave their lives in the battle against autocracy, taken hold of the public mind. The newspapers are taking up the idea in editorials urging planting of memorial trees.

It is the aim of the American Forestry Association to register all such trees planted in order that a record may be kept for another generation and it is requested that members of the association keep the officers informed of any such activities. The members of the association have a fine opportunity to bring forestry to the fuller attention of the American public by means of this campaign and it is urged that each member place before any local memorial committee the suggestion that memorial trees be planted. Suggest that the committee call upon the state or city forester for advice, and keep the American Forestry Association informed of any developments and plans for planting.

Plans for memorial tree planting take many forms. In Indiana Richard Lieber, the secretary of the Board of Forestry, at the suggestion of Governor Goodrich, proposes to let each county decide the size of its own grove to the memory of their boys. Representatives from these counties will be urged to form a state organization, appoint an executive committee and with the assistance of artists and park experts lay down general principles of

beauty, symmetry and expression to the groves.

From Kansas comes the heartiest indorsement of the memorial tree plan by Governor Capper. He has turned the suggestion over to the new administration with the hope that Arbor Day in Kansas be the banner one in the state's history by the planting of memorial trees along the motor highways crossing that state. The Lincoln Highway has big plans under way in co-operation with the General Federation of Women's Clubs for the planting of memorial trees along that route. In Louisiana "Victory Oaks" are to be planted along the Jefferson Highway and the American Forestry Association is getting letters every day from state and city foresters urging planting along similar motor routes.

The opportunity to beautify the cities is one of the big phases growing out of the memorial tree idea. In St. Louis Park Commissioner Cunliff will plant memorial trees along each side of the famous Lindell Boulevard. In Kansas City a group plan memorial is being discussed which offers a fine opportunity for the planting of memorial trees. In Baltimore discussion is on for a memorial in Mt. Vernon Place that will include avenues and drives with proper tree planting. Philadelphia is discussing a boulevard connecting the University of Pennsylvania and Fairmount Park. Such plans as these of course include fine memorial buildings and arches, but everywhere the conviction is growing that trees as memorials should be incorporated in the plans.

Another suggestion that has come to the American Forestry Association is the one for making the Community Christmas Trees permanent, rather than

a new tree every year. C. P. Wilbur, acting state forester of New Jersey, informs the association that there is a permanent tree at Morristown, N. J., in the city park. It would appear that here is a good suggestion for every



AS IF A GUARD OF HONOR

The trees at the foot of the hill upon which stands the most famous monument in the world.

member of the association to work on in his own locality. The permanent tree would, if properly placed and cared for, prove a wonderful inspiration the year around. Alfred Gaskill, the state forester of New Jersey, urges the organization of community units to plant memorial trees in park, public square or school yard. The suggestion has been made by Mrs. John Dickinson Sherman of the General Federation of Women's Clubs that the school children of Chicago plant memorial trees in honor of Mrs. Ella Flagg Young. This suggestion can be taken up by other communities who wish to honor educators in a similar way. J. S. Holmes, the state forester of North Carolina informs the association that the General Federation of Women's Clubs in that state has planted "Pershing" and "Liberty" oaks and that the tree planting idea is being taken up by the schools. F. W. Besley, the state forester of Maryland, has a forward going plan which includes the planting of trees in honor of children, thus the tree becomes an object of great interest to the growing child and he comes to take the greatest care of the tree.

Frank William Rane, the state forester of Massachusetts, is urging memorial forests. He points to the fact that there are millions of acres in the country waiting for just such noble endeavor and he suggests that the returning soldiers be employed in this great work. In Oakland a "Victory Park" is being discussed and M. B. Pratt, the deputy state forester of California suggests memorial trees in the municipal auto parking areas that are being established all over the state.

The college campus offers a fine setting for memorial trees and the suggestion has been made that the "old grads" get together and plant trees for the men who answered the call of their country. The elms at Yale, for instance are famous. Every Oberlin man and woman knows Tappan Walk and the famous elm at the corner of the campus of that Ohio college. To enumerate trees with a history would go beyond all space bounds but

some of those most widely known are the elm in whose shade William Penn made his treaty with the Indians; the Charter Oak in Massachusetts; the palmettoes of Charleston, S. C.; the cypress trees at the Jumel mansion in New York City; the Washington Elm at Cambridge; the pin oak trees in Mount Vernon Place, Baltimore, dedicated to eight Maryland men on Washington's staff. More recent plantings have been the 150 Liberty Oaks at Liberty Heights just outside Westminster, Maryland, set by high school boys for the Women's Civic League of

Westminster. State Forester Besley believes this is the first memorial tree planting on such a scale, the trees being distributed along a mile of the road. Look for the opportunity in your city; picture to your fellow-citizens the beauties of forestry and urge the planting of trees in connection with any memorial adopted. Well may we consider France for as Richard Lieber, secretary of the Indiana Board of Forestry, says:

"The Argonne Forest stands as a huge memorial grove to the memory of American and Allied heroes. The Argonne is also a symbol of what a forest will do in war and in time of national peril. Trees are man's best friend.

"Stone and bronze monuments may be heroic and military, they are more often vaingloriously dynastic in purpose. A monument of trees in a well ordered grove is human and humane; it speaks the language of freemen. It is full of solace and hope to the bereaved. As a living and a breathing thing it speaks of victory over death. It is expressive of thanks and devotion by the

people to its heroes, dead and living."

The appeal of the living, growing tree is universal and the American Forestry Association finds that hundreds of organizations are eager to furnish the plan. One of the most recent indorsements of the plan came from the Women's Association of Commerce with headquarters in Chicago and another from the Woman's National



A LIVING MEMORIAL

Mrs. Louis Boex is placing the last spade full of earth around the roots of a silver maple tree—a memorial for her son, Louis Boex, gunner on the Ticonderoga, who lost his life when he was answering the shell-fire of a submarine which afterwards sank the troop ship.



WITH TREES FOR A BACKGROUND

The trees about the famed Bartholdi Fountain in the Botanical Garden at Washington prove without shadow of a doubt that trees are the proper setting for any memorial.

Farm and Garden Association with headquarters in New York City. Everyone sees the coming of the city beautiful in plans for memorials. The tree will have a prominent place in such plans and presents an opportunity for a growing interest in the beauties of forestry. In this work the members of the American Forestry Association have a big part—the great opportunity in fact to interest every organization to which they belong in the value of forestry in general. We all know the

devastation in France that has been pictured to us during the war. The authorities agree that the forests of France kept the Hun from reaching Paris. That should be a great lesson to any country. In our trees lie a great strength; in memorial trees in honor of our soldiers and sailors, whether they lost their lives or not, is a great object lesson as well as a lasting and fitting memorial to those who fought against autocracy.

CARE FOR THE BIRDS IN WINTER

THE *American City* publishes an interesting letter from Ernst Strehle, Park Superintendent of St. Louis, in which he says that a systematic effort has been made to care for their native birds during the winter for the past two years. Continuing Mr. Strehle says:

"So successful has the experiment proved, that we expect to extend the work to all St. Louis parks this winter.

"Feeding stations were established at numerous places throughout the park, and the work of feeding was turned over to one of the employes of the park, who had previously received the proper instructions as to procedure. The food consisted of grains and other seeds, bread and meat, the total amount of food used being about 200 pounds per week throughout the entire winter.

"The following approximate number of birds were regular guests at the feeding stations: Two hundred quail, 50 blue jays, 100 red-headed woodpeckers, 30 three-toed woodpeckers, 100 flickers, 30 winter wrens, 70 brown creepers, 30 red-breasted nuthatches, 150 black-capped chickadees and 30 red birds. Several hundred gray squirrels also took advantage of this opportunity to get food easily.

"About 700 bird boxes, made by the children of the manual training classes of the St. Louis public schools, were distributed and hung in the various parks, under

the supervision of the Park Superintendent, often in the presence of the children who made them. These boxes were made according to the specifications issued by the United States Biological Survey.

"No one can accurately estimate the value of this work, but there can be no doubt that if these birds had not been fed and protected in this way the unusual severity of last winter would have forced them to migrate further south or would have killed them outright. Their loss to Forest Park would have been serious, as they are of considerable value in checking the development of insect life in the park, to say nothing of the pleasure they give to the persons who visit the park during the winter.

"The woodpeckers, for example, or the creepers and nuthatches, whose food in winter consists largely of eggs, pupae and larvae of insects which hibernate in the bark and wood of trees, will demonstrate in a very short time to anyone who will stop to watch them why it is worth while to induce them to remain in a climate otherwise too severe for them. The red bird, and many others likewise, ordinarily seek a sheltered ravine in the deep woods, and seldom winter in the city unless specially induced to stay. With the possible exception of the blue jay, all the birds mentioned have a decided economic value that is many times greater than the cost of feeding and caring for them during the severest winter."

USES OF THE BRAZIL-NUT TREE

BY C. H. PEARSON

THE Brazil-nut tree, called in botanical language, *Bertholletia excelsa*, is one of the most remarkable plants belonging to the monkey pot family. It forms a lofty tree with spreading branches and with a thick rough bark. Its stem averages a hundred feet in height and from two to four feet in diameter. The branches do not appear until near the top where they extend outward and upward in an irregular fashion as shown in the illustration. Its leaves are undivided, arranged alternately upon the branches, about two feet long and from five to six inches wide of a brilliant green. The flowers are yellowish white, more or less inconspicuous, and the fruit, which is produced in the upper branches, is a massive, round, hard-shelled pod from four to six inches in diameter.

This gigantic tree in the South American forests forms immense stretches of forests along the Amazon and Rio Negro rivers, and likewise about Esmeraldas on the Orinoco. The range of the Brazil-nut tree is not well-known, but it is one of a kind very extensive in the country, i. e., those of which both the timber and the fruit are largely available. The majority of the timber trees of Brazil do not yield fruit eaten by man; while the majority of their fruits are obtained from plants not yielding available timber. The Brazil-nut tree affords in its lumber, its fruit, and its bark many useful products which attract our attention.

The wood obtained from the Brazil-nut is highly esteemed in Brazil for building and naval construction and for works exposed to the soil and air. It is hard, heavy, strong and tough and splits with a straight, clean fracture though not so easily as a good many other woods of equal weight and hardness. The wood has a long fiber and is noted for its toughness and durability. It is light brown, tinged with red and turns slightly

darker with age. Considering its hardness the wood works well and takes a very good polish, which it retains. There is an almost inexhaustible supply of this wood and the large forests have scarcely been touched with an ax.

As described above, the fruit of the Brazil-nut tree is an excessively hard-shelled pod which contains from

eighteen to twenty-four edible seeds, so beautifully packed in the shell that when once removed it is impossible to replace them. Although they are called nuts they are not nuts in the botanical sense; in the trade they are generally so considered. Brazil, Para and cream nuts are a few of the more common trade designations. Originally these seeds were exported chiefly from Para, and, therefore, came to be called Para nuts. In Venezuela both the trees and the nuts are called *juvia* and in Brazil the Portuguese name for the seeds is *castanheiro* or *castanheiro do Para*. This name has been corrupted to *castanha*, meaning nut, and the term *castanhal*, means nut orchard.

The gathering of these seeds is an important industry in Brazil. Mr. C. F. Carter in the December issue of the South American, gives a very interesting description of the manner of gathering



A SMALL CLUMP OF BRAZIL NUT TREES

This tree averages a hundred feet in height of stem, and two to four feet in diameter. It is most useful, for its lumber, fruit and even bark yield valuable commercial products.

ing the seeds. He says:

"Early in January, the harvesting parties set out to gather the crop. As the only means of transportation in North Brazil is by water, these parties travel in canoes up the smaller tributaries to the castanhals. Arrived there, the pods are assembled at the foot of the trees, and broken open with the machete, after which the nuts are carried in baskets to the canoes which, when loaded, are taken down the small streams to the larger rivers navigable by steamboats. As the river steamers are unable either to maintain regular schedules or await the arrival of gathering parties with

nuts it is necessary that the nuts be left on the river bank in what are known as "paioes." These paioes consist of cleared spaces protected from the hot sun and tropical rains by palm leaf shelters. However, these paioes are inadequate and, in consequence, the nuts sustain more or less injury at this stage, according to the length of time they remain in the paioes.

In a few districts, the custom of washing the nuts prevails. The method now in vogue is the same as was employed generations ago. In these districts, when the canoes arrive from the castanhais, the nuts are transferred from the smaller boats in small wicker baskets



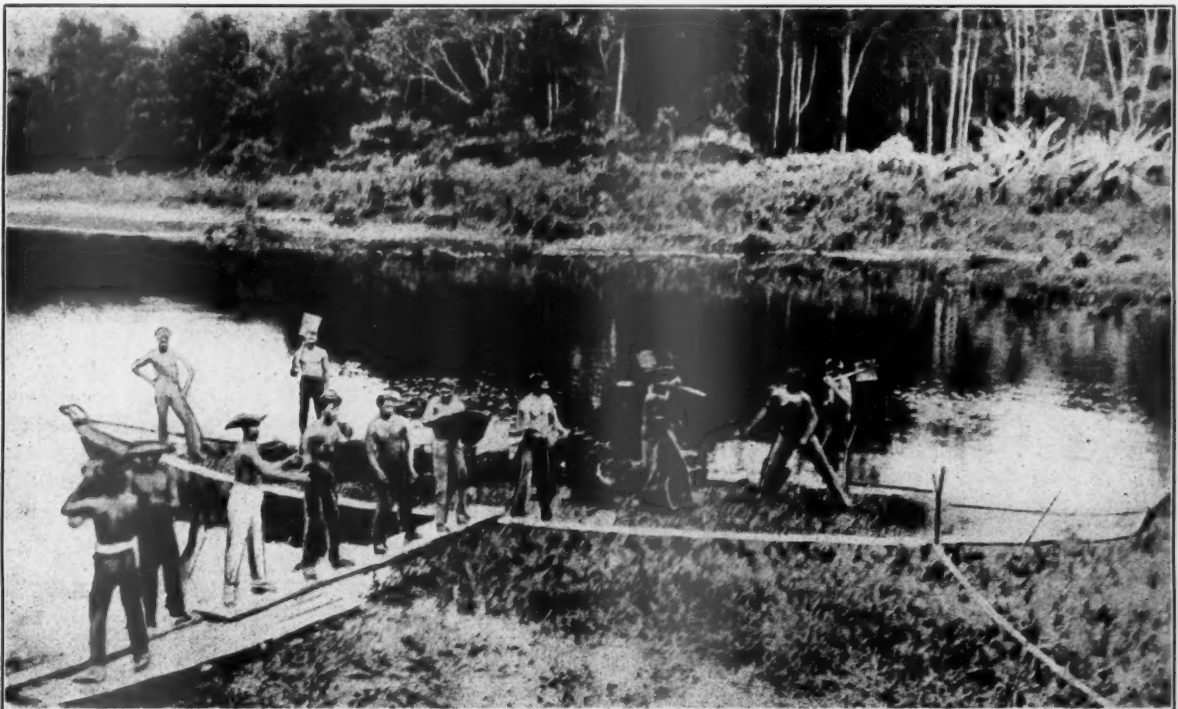
Courtesy the South American

LOADING THE NUTS ON SMALL BOATS

The only means of transportation in North Brazil is by water and so the harvesting parties travel in canoes to the castanhais, or orchards, where the nuts are carried to the canoes in baskets for loading.

which are immersed in the stream several times. By this process the accumulated dirt is washed off and imperfect nuts rise to the surface and float away. The cleaned nuts are passed on to the larger canoes or lighters and are later transferred to the river steamers for transport to Manaus and Para."

These so-called Brazil nuts are well-known in the American markets and are highly esteemed for their oily almond-flavored interior. They are a luxury in some countries and an article of food in another. They are used either to obtain an oil or are eaten in the raw state or are otherwise prepared as an article of food. About the end of December the seeds are in the fit state to be eaten raw ;



Courtesy the South American

NATIVES BUSY TAKING OFF BRAZIL NUT CARGO

The cargoes of nuts are brought down the small streams of North Brazil in canoes to the larger rivers, which are navigable by steamboats and which carry the nuts to market. The industry is an active, profitable and most important one in Brazil.



Courtesy the South American

UNLOADING BRAZIL NUTS

This shows the method of unloading the nuts by basket and depositing them on the river bank awaiting the arrival of the river steamers.

and they may be preserved for many months by storing them in a moderately dry place and out of reach of the hot sun or excessive moisture. The use of the seeds for procuring an oil is more extensive and important than is generally known. If they are kept dry the kernel soon easily separates from the hard shell of the seed. The seeds are then cracked with a small mallet or by means of machinery especially designed for this purpose without injuring the kernels. The sound kernels are next cleaned from every particle of shell and crushed for the purpose of obtaining the oil of which there is approximately 70 per cent. The oil obtained from the first pressing is of the best quality; it is clear and suitable for food and is sometimes used as a substitute for olive oil. It retains the taste of the kernel, which to some persons is very disagreeable. The oil is used also by watch makers and artists.

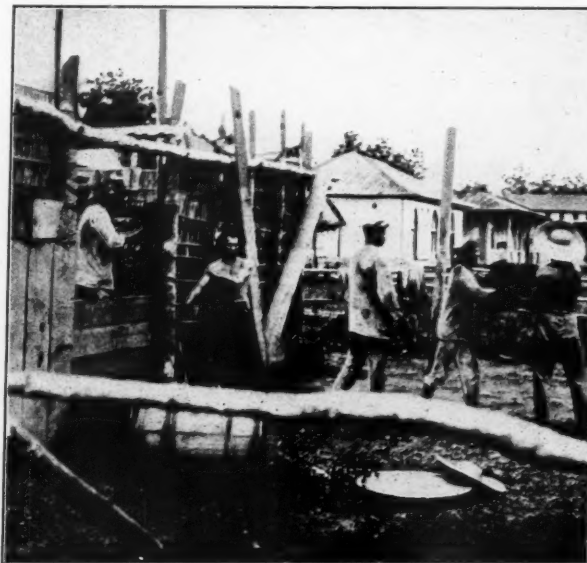
The bulk of the seeds coming into the United States are eaten. It has been estimated that about twenty per cent are shelled and used by confectioners for making various sorts of candied products. This latter use is rapidly increasing.

According to Mr. Carter the exports of Brazilian nuts from Para, Manaus, and Itacoatiara during the period from January 1st to June 30, 1915, amounted to 407,687 bushels. Of this total, 188,542 bushels were from Manaus, 38,117 bushels from Itacoatiara, and 181,028 bushels from Para. Manaus shipped 100,890 bushels to Europe and 87,652 to American ports, Itacoatiara 24,274 to

Europe and 13,843 to this side of the Atlantic, and the respective figures for Para were 87,496 and 93,532. The total exportation to Europe was 212,660, and to American ports, 195,027. The statistics of the Department of Commerce and Labor give the following amounts and values of the Brazil nuts imported into the United States from 1909 to 1914, inclusive:

| Year | Amounts | Value |
|----------------|------------|------------|
| 1909 (Bushels) | 407,719 | \$ 761,219 |
| 1910 " | 461,496 | 1,251,738 |
| 1911 " | 283,902 | 804,064 |
| 1912 (Pounds) | 21,539,508 | 1,092,671 |
| 1913 " | 11,933,445 | 668,534 |
| 1914 " | 20,423,497 | 1,075,907 |

Another interesting product of the Brazil-nut tree is the bark.



Courtesy the South American

PLACING BRAZIL NUTS IN THE PAIOES

These paioes are shelters built of palm leaves on the river banks, in which the nuts are protected from the hot sun and tropical rains pending the arrival of the river steamers.

The inner portion of the bark is rather thick, very fibrous and of a dark brown or reddish color indicating the presence of tannin. It contains tannin in commercial quantities, but it is rarely used for this purpose because the bark is too valuable for making oakum used so extensively in Brazil for calking vessels.

A CABLEGRAM from France received from Secretary P. S. Ridsdale, of the American Forestry Association, just before this magazine went to press announced that the French Government has accepted the offer of aid in reforesting France made by the Association. Mr. Ridsdale, after visiting the devastated areas, will return to Washington, sailing from Liverpool February 5th, on the first available boat. Plans for gathering the seed for France will be completed upon his return.

THE POSSIBILITIES OF FARM WOODLAND DEVELOPMENT UNDER THE SMITH-LEVER ACT

BY C. R. TILLOTSON

ACCORDING to estimates made by crop reporters of the Bureau of Crop Estimates, United States Department of Agriculture in December, 1917, approximately 83,000,000 cords of firewood were used on the farms of the United States in the year 1917. The total value of this in round figures was \$283,000,000. A



A WHITE OAK STAND

These trees are 25 years old, 2 to 5-inch diameter, 30 feet high. The stand is in excellent shape for a thinning of 2,000 to 2,500 per acre. Sprouted low. Grazing has been practiced. Brighton, Livingston County, Michigan.

similar estimate made in December, 1916, showed about 82,000,000 cords used in 1916, valued at \$225,426,000. These figures represent only the value of cordwood used on the farm. They do not include the value of other products, such as posts and poles used on the farm nor the cordwood and other material sold from the farm woodlands. With these taken into account, it seems reasonable that the total value of products cut from farm woodlands during each of these two years must have been from \$400,000,000 to \$500,000,000. Probably more often than not, moreover, the woodland owner through ignorance of values received less for his woodland products than they are worth. For the most part also farm woodlands are in poor condition and not producing as much

cordwood or other material as would be possible if they were properly cared for. It is apparent that even considered from the standpoint of a revenue producing crop only, farm woodlands are an asset of considerable national importance. The coal shortage experienced in several regions last winter has emphasized the fact that farm woodlands have a value other than that of being merely revenue producers. Many a farmer and community would have gone cold for a period last winter had it not been for cordwood cut from farm woodlands to meet the emergency of no coal. The same may perhaps be true next winter and then again at some future date. It is principally as a yearly crop, however, that wood deserves attention.

Wood produced in the farm woodlands is a farm crop and there is a continual need on the farm for it. As a crop it has attributes possessed to a like degree by no



ENGINE CUTTING WOOD

Saws whole trees up $\frac{1}{4}$ to 2 cords an hour. Santa Fe Springs, San Bernardino County, California.

other on the farm. It demands little care; will thrive on poor soil; naturally and continually regenerates itself, and is marketable at all seasons and at increasing values as it grows older and larger. In some regions wood is still the main crop of the farm and furnishes employment for

man and beast alike during winter months. The woodland serves as a protection to farm buildings, livestock, and crops and increases the sale value of the farm. These things entitle it to consideration at the hands of agriculturists and all others interested in better farming and better farm conditions in general.

A great and growing interest of late years been taken by the individual states and the nation in rural affairs. Through their agricultural colleges and experiment stations the states have been wrestling with local agricultural problems and sending useful information broadcast to farmers within their borders; the national government has also been helping agricultural affairs largely through the organization of the United States Department of Agriculture, but also through giving direct aid to State Agricultural Colleges in the form of Federal appropriations. A number of acts for this purpose have been passed from time to time, but the one known as the Smith-Lever Act, passed May 8, 1914, is proving to be more far-reaching in its effect than any of the others. This bill provides for co-operative agricultural extension work between land grant agricultural colleges in the states and the United States Department of Agriculture, this work to consist of the giving of instruction and practical demonstrations to persons not attending or resident in these colleges

and imparting to such persons information on these subjects through field demonstrations, publications, and otherwise. The work must be carried on in a manner mutually agreed upon by the Secretary of Agriculture and the colleges which receive the benefit of the act.

To pay the expenses of this work, \$480,000 is to be appropriated yearly from Federal funds; \$10,000 of this will be distributed to each state. An additional \$600,000, or a total of \$1,080,000, was appropriated for the fiscal year July 1, 1915, to June 30, 1916. For each year thereafter for seven years, the Act provides for an appropriation exceeding by \$500,000 that of the preceding year. Thereafter, there will be permanently appropriated each year in addition to the sum of \$480,000 the sum of \$4,100,000 to carry on this work. For the fiscal year July 1, 1918, to June 30, 1919, there will be appropriated \$2,580,000. To receive its due quota of the money ap-

propriated in any one year, the State must provide an equal amount either through an appropriation by the State Legislature or through "state, county, college, local authority, or individual contributions from within the State."

As stated in the Yearbook of the Department of Agriculture* for 1914, this is one of the most striking educational measures ever adopted by any government. The machinery for putting it into effect is already well developed, every State in the Union has agreed to its provisions, and already the State Agricultural Colleges and the United States Department of Agriculture are getting in closer touch with the agricultural population than has hitherto been possible. Through the employment at these colleges of experts in different lines, such as agronomy, animal husbandry, dairying, etc., many lines of work are already being carried on under the provisions of this law. The possibilities in this respect have been made more effective through the system of county agents in most States. These men, with headquarters usually at

the county seat, are in the employ of the Agricultural College. It is their business to assist farmers in agricultural matters. They are almost continually traveling from farm to farm in their counties and carrying information to the farmers. All of each State's activities supported by this Act are under the control of



PRODUCTS OF THE WOODLOT

A load of hackberry poles on public square for sale. They bring \$2.50 per load at Gallatin, Tennessee.

the State Extension Director, who is also connected with the College, and before any projects for which the use of Smith-Lever funds are contemplated can be initiated, they must receive both his approval and that of the States Relation Service of the United States Department of Agriculture.

The significance of this bill and the organization of county agents which has arisen out of it to those interested in forestry and particularly in farm woodlands must be apparent. The importance of farm woodlands to their owners has already been pointed out. Why, then, should not they be given their due share of attention under the provisions of this law? The average woodland owner knows less about the handling and selling of his timber than about any other farm crop. The present big demand for cordwood is doubtless resulting in the needless slashing of many farm woodlands and will

* Report of the Secretary, page 50, Yearbook of the Dept. of Agr., 1914.

destroy their future usefulness. Through expert advice upon how and what timber to cut from farm woodlands, great quantities of cordwood in the aggregate can be secured without damaging their productive capacity. The woodland lends itself very well to demonstrations of various kinds such as improvement cuttings, estimating timber, planting to secure windbreaks or better stands, efficient cutting and marketing of products, preservative treatment of fence posts, and a number of others. There is no question of the legality of such work under the terms of the bill. It has already had the approval of the States Relations Service of the United States Department of Agriculture, and Extension Directors in several States. There is apparently no reason why the farm woodland should not come in for attention and a great many reasons why it should. All that now needs to be done by those interested in this phase of agriculture is to impress upon the State Extension Director the immediate necessity for initiating such work, and assisting him to do it.

The best means of giving such work permanency and effectiveness appears to be for the agricultural colleges from which the extension work is directed to attach to their staffs for this particular purpose an expert in forestry. His position would be similar to that of an expert in dairying, for instance, who is attached for the purpose of improving the dairying conditions throughout the State. The forestry expert would be able to take advantage of the system of county agents and through them reach more people than through any plan in which he would have to work alone. There is little question but that through assistance given in the sale of woodlands products alone he would each year save to woodland owners in the State many times his salary. In teaching them how to care for their woodlands he would be making provision for future supplies of farm timber

and increasing the value of the farms. His duties would not interfere with those of the State Forester, and in most cases at least he would be welcomed and given as much assistance as possible by the State Forester. In several States, such experts have already been employed by the agricultural college.

Where in the opinion of the State Extension Director conditions do not at present warrant the employment of such a man, it may still be possible for the State Forest Service to carry on such work in co-operation with the State Extension Service of the College. At least two State foresters are already doing so with entirely satisfactory results. If a State Forester wishes to conduct work in line with provisions of the Smith-Lever Act and can allot for that purpose a certain amount of his appropriation to a project which will come under the direction of the State Extension Director at the college, there is little doubt that many of these directors would be willing to submit such a project to the United States Department of Agriculture for approval. On the strength of funds allotted by the State Forester for this purpose, the Extension Director would be in a position to request an equal amount of Federal Smith-Lever money to meet



OPEN WOODLOT IN GOOD CONDITION

A stand of sugar maple, walnut, coffee tree, ash, red oak and hickory at Prospect, Marion County, Ohio.

it providing, of course, the States' entire quota were not already utilized in other extension projects. As each State's quota of this Federal money will continue to increase yearly until July, 1922, State Foresters have a splendid opportunity to take advantage of this Smith-Lever Act. They should lose no time in getting in touch with the Extension Director of their State in order to work out with him a project which will conform with the provisions of the law, be acceptable to both, and be effective in giving the woodlands under this law the consideration which their importance in the general farm economy fully justifies.

INTRODUCE YOURSELF TO AN AX!

"THE ax is intimately associated with the history of the world and has played a prominent part in all stages of its progress," says Mercer P. Moseley, Assistant Federal Fuel Administrator for the State of New York.

"In Biblical lore and historical age its record is one of absorbing interest. Elijah employed it as an instrumentality to strengthen the early Christian faith when he performed the miracle of its rising from the depths of the Jordan. Bryant's 'Forest Hymn' makes illuminating reference in the lines 'Ere man learned to hew the shaft or lay the architrave.' Its function runs the manifold gamut from murder to peaceful pursuit. Under its stroke the heads of both kings and commoner have

rolled in the sawdust in the days when the mob reveled in the sight of blood. It was the general weapon of war in ages past. Gladstone and Lincoln employed it for purposes of healthful exercise. Boone and Crockett reckoned its indispensability with that of the rifle. Today our engineers depend upon it to throw bridges across streams, to erect hurried protection for front-line fighters and to advance the arts of war. And those of us at home can and should use the ax to split dead wood for live fires and thus save coal. This modest and non-spectacular performance is a distinctly patriotic and helpful contribution to the success of our arms across the seas as well as to the comfort of those left behind. Introduce yourself to an ax."

DIGEST OF OPINIONS ON FORESTRY

WILL YOU NOT CO-OPERATE WITH US BY IMPRESSING UPON THE EDITOR OF YOUR
NEWSPAPER THE IMPORTANCE OF FORESTRY? WRITE TO YOUR NEWSPAPER

MEMORIAL TREES, the forest fire in Minnesota, the work of the Boy Scouts in locating walnut trees and the saving of paper are subjects discussed by the newspapers of recent issue. In the Memorial Tree and paper saving campaign the American Forestry Association has a big part and with the co-operation of the members of the association will have a still bigger part. Every member should further the suggestion that Memorial Trees be planted for the sailors and soldiers who fought in the war by writing his newspaper and placing the suggestion before committees having memorials in charge. Each member should constitute himself a committee of one to forward to the secretary marked copies of papers mentioning this subject in any way.

Plans for memorials are now being discussed everywhere. The *Boston Post* devoted a page to memorial suggestions leading the article with a letter from the American Forestry Association suggesting that trees be considered in whatever was done. The *Pittsburgh Gazette-Times* in an editorial tells of the association's secretary going to France to offer aid to reforesting that country and of the importance of that work. *The Constitution* of Atlanta takes up the Memorial Tree idea editorially and says the suggestion is "both commendable and feasible." The *Dayton News* points out what fine memorials trees will make and adds that their great value to bird life should be taken into account. "Any plan that will result in more tree planting," says the *Milwaukee Journal*, "should have the most careful consideration." The *New York Sun* says editorially: "No more appropriate, beautiful, or sensible memorial to the men who have fallen in the war could be devised than plantations of trees." The *New York Mail* calls the memorial tree idea one of "excellent possibilities for a great national work."

"Tree planting is at once a simple, thoughtful, artistic and durable means of raising a memorial. It is being urged by the American Forestry Association," says the *Chicago Tribune*, "and because it is so simple of accomplishment and so enduring it should receive immediate and active support everywhere in the United States."

"There would seem to be a quality all but universal in its appeal in the proposal, which to a considerable degree has been put into practice to plant trees along the great highways," says the *Cincinnati Enquirer*, while the *Baltimore Star* takes this view: "The public is becoming sympathetically attuned to the idea of having memorial trees planted for soldiers and sailors." The suggestion for permanent Community Christmas Trees is meeting with hearty indorsement and Earl Godwin, writing in the *Washington Times*, says: "There is a good

idea. Here is a fine opportunity for a 'Victory Grove' that would be one of the finest tributes to our heroes no matter what may be done in bronze or stone." As to the value of memorial tree planting the *Tifton, Georgia, Gazette* says, "that is a splendid suggestion from the *Savannah News*."

"A Spectator" who witnessed the planting of Memorial Trees for four members of the Church of the Holy Innocents, at Tacony, writes in the *Public Ledger*, "the exercises were marked by great reverence and solemnity." "The Listener" in the *Boston Transcript* devotes comment to memorial tree planting and the *Transcript* also calls attention to the request of the Society for the Protection of Native Plants that less laurel be used. The *New York Evening World* prints the story of the laurel wreath sent to President Wilson by the General Federation of Women's Clubs which is urging it as the national flower. The *Post Dispatch* of St. Louis in an editorial asserts there are many available locations for tree planting there and continues, "the groves were God's first temples, and as a living shrine for liberty the twentieth century can offer nothing better." The *Public Ledger* says, "there will be complete unanimity as to the wisdom of formal tree planting in parks and on highways." The country is impatient, the *Public Ledger* adds, with the average memorial that sprang up after the Civil War.

The drain upon the sources of the timber supply of Great Britain are pointed out in a long article in the *Christian Science Monitor* and the *St. Nicholas* treats of what family the peanut really belongs while the *Youth's Companion* tells its readers about the wood needed in making an aeroplane propeller. The *Nashville Banner* carries an article by Latimer J. Wilson on the "aeroplane forest patrol" which subject is attracting attention all over the country. The *New York Herald* had a good story on the offer of the American Forestry Association to help in reforesting France and another on the need of replanting black walnuts.

In an article on "Autumn's Chemistry" the *Portland Oregonian* touches upon the wonders of Nature at the closing of the year. The *Cleveland Plain Dealer* carries a feature story on the quick work in pine tree cutting to make ships at Galveston. The *Washington Star* prints the letter to the Boy Scouts from Secretary of War Baker praising that organization for its work in locating black walnut. The *Washington Times* has printed many articles on memorial trees and the news associations, as could be seen from the page of headlines printed in the December number, have co-operated in a very fine way. The *Times* of Marietta comments upon the fact that walnut trees are disappearing and says, "for every food tree cut

down six should be planted." The newspapers are finding many good stories in the office of the state or city forester since the American Forestry Association started the campaign for memorial trees.

The *Dallas News* is giving more and more space to the value of forestry, having carried a story on "trees and rainfall," by Dr. Joseph L. Cline, the weather observer there, and another on the pecan as a valuable shade tree. "The destruction of timber in the last half century has been little short of criminal," says the *Evening Journal* of Dallas in suggesting more attention be paid in the schools "to the resources which Providence has set aside." The *Detroit Free Press* calls attention to the shortage of several valuable woods in an editorial and reminds us that Ruskin called the tree the link between earth and man. The *Trenton (N. J.) Times* has had two editorials on forestry and several news stories.

The *Charlotte Observer* "will not despair," it says, although "it has hammered on the cross tie conservation idea for years past." The *Observer* goes on to point out the fuel value in the cross ties being burned along railroad rights of way every year. From cross ties to poetry may be a long cry but the newspapers seem ever ready to print anything touching the beauties of Nature and there is always something about trees in that subject. The *Arkansas Gazette* has a poem, "Song of the Pines," and John D. Wells, the sweet singer of the *Buffalo News*, pens of the "First Frost of Fall," from which we take this verse:

The first frost fell last night! It glazed the trees.
The pavements, too, it painted snowy white;
The roofs and walks, as Fancy seemed to please,
It fell upon and coated over night;
The town was white, with autumn's hoary sign,
And here and there in all the world of man
It touched a heart and turned, as it turned mine,
To nutting days in Mills' Grove again.

Once more rally to the call, members of the American Forestry Association. Every tree beckons to you to become a friend—a friend of action instead of an admirer only. Their interests are our interests, heed the call.

ROOSEVELT

'Tis not alone in Flanders field
The poppies grow;
To him who spent his life for us
Comes Death's fell blow,
Our greatest Soldier of the Right
Is stricken low.

More dauntless spirit never beat
In any breast,
More valiant sword was never drawn
On any quest,
Now wept by all who love the land
He sinks to rest.

We vow that we shall wage his fight
Upon the foe,
We vow that we shall keep his faith
Because we know
'Tis not alone in Flanders field
The poppies grow.

—McLandburgh Wilson, in the *New York Sun*.

TO HELP REFOREST FRANCE

CARRYING a sack of Douglas fir seed, Percival S. Ridsdale, secretary of the American Forestry Association, has arrived in France to offer the help of America in reforesting the 1,500,000 acres of woodland wiped out by the war in the north and east of that country.

The seed carried by Mr. Ridsdale will grow 50,000 trees, valued at about a million dollars, although the sack in which he carried it is small enough to be fitted into a traveling bag. The Douglas fir seed has been asked by the French Government for experimental planting, as it is thought to be suitable for French soil and climatic conditions.

"This vast acreage of forest was used in trench, road and barracks building or else was blasted to pieces by shells," Mr. Ridsdale explained. "Almost a million



Harris and Ewing

A SMALL PACKAGE WITH A BIG VALUE

Taken just before he sailed for France, this picture shows Mr. Ridsdale holding the bag of Douglas Fir Seed which he carried with him. It held 50,000 seeds—all that could be obtained in this country at this time.

French people were dependent upon these forests for their livelihood six months in the year and the French Government faces a great economic problem in providing them with other resources until the forests are restored.

"In collecting the seed wanted by France the members of our association, the forestry departments of the various States, the Boy Scouts and other organizations will be called upon to help," he said. "A million and a quarter acres of forest in the north and east of France have been practically wiped out during the war and must be replaced."

Forestry for Boys and Girls

by E. C. Cheyney

THE PINE WOODS FOLKS

SQUEAKY CHIPMUNK LEARNS SOMETHING ABOUT PINE SEEDS



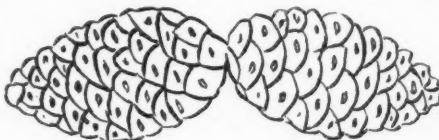
SQUEAKY Chipmunk was darting nervously around under the blueberry bushes near his hole beneath the old rotten log. He was in a great hurry because he had heard a strange sound and he always made it his business to find out all about every sound that he heard. His scanty little tail stood straight up as he bobbed from stump to stone and from stone to fallen tree.

"That's very strange," he said, stopping a moment on his old familiar log to catch his breath, "I heard a distinct bump, and it was not so very far from here either."

With that he scurried off to have a peak behind an old pine knot that he might have overlooked. He had just jumped to the top of the old pine knot when there was a tremendous thump behind him that sent him scurrying into the brush in a panic. But he was back again almost instantly. No matter how badly he is scared his curiosity is so great that he is just obliged to come right back to see what it was that scared him. No sooner had he scampered back to the old pine knot than his bright little eyes discovered the shiny new pine cone lying less than two feet away.

Now Squeaky has a terrible temper and nothing makes him quite so angry as to have been badly scared when there was no real cause for it. His fur bristled up, he pounded the old knot with his tiny hind feet, and squeaked his very maddest. His little tail quivered and jerked with every squeak, and the more he squeaked the angrier he seemed to get. At first he squeaked at the pine cone, but he soon stopped that and turned his attention to the top of the big Norway tree for he knew perfectly well why that cone had fallen.

Sure enough a red form glided out on the end of a limb high up on the great Norway, first over a big
les, at the end
down came an
It came so close
ducked in spite
he immediately recovered with an angry little chatter and squeaked louder than ever. Indeed he squeaked so loud that he was almost afraid of himself.



A scolding chatter came in answer from the top of the pine tree, a chatter so harsh that it was almost a bark. "Don't you touch those cones," Chatter Box, the red squirrel, called down angrily. "Don't you dare touch them. I cut them down and they are mine."



"I know you cut them down," snapped Squeaky, who could be as saucy as anyone when Chatter Box was away up in the top of a tree, "and you be careful where you drop them. You almost hit me that time and if any of them fall in my yard I'll take every one of them."

"You try it," snapped Chatter Box, "and I'll eat some of your children."

This scared Squeaky a little, but it would not have stopped him from taking one of the cones if he had not wanted to see what Chatter Box was going to do with them. He was very young himself and the few pine seed he had stored the winter before had all spoiled on him. He knew that Chatter Box was an authority on pine seed and he wanted to see what he would do with them. He climbed a stub on the old log over his house and watched.

Chatter Box came tearing down the tall Norway in a great hurry, scattering loose pieces of bark in all directions. He grabbed up the cone nearest to Squeaky and carried it to the top of the old stump.

He picked a nice flat spot, curved his tail up gracefully behind his back, and, with fixed on Squeaky, he idly around in his cone scales and dig under them. Squeaky "Yes, he was eating

"I thought it was too Squeaky called in

"It is too to eat any of ter Box retor taste pretty he added he picked cone and car onto the

"Have you very many of them this year?" Squeaky asked, ignoring the insult, for he had not yet found out what he wanted to know.

"Stored them," Chatter Box exclaimed in contempt, "I should say not. They will not be ripe enough to store for two weeks yet."

That was what Squeaky wanted to know. That was the reason his had shriveled up the year before. He had stored them too early. So you could eat them for two weeks before you could store them, that was worth knowing, too. The next thing was to get some to eat right now, for it had made him very hungry to see the other fellow eating them right before his eyes. He was in hopes that Chatter Box had cut down more than he could eat and would leave some on the ground. He was afraid to try to climb those tall trees and try to cut them down himself. He counted all the cones he could see on the ground and waited patiently. But Chatter Box slowly picked up one after

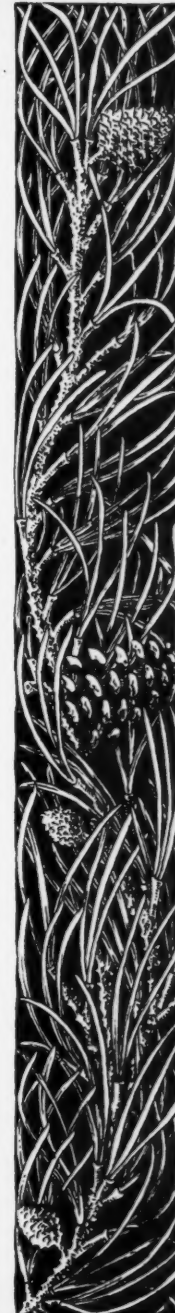
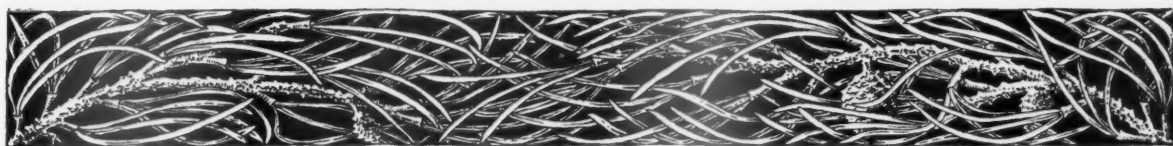


up gracefully behind his bright little eye turned the cone rap-paws, biting off the ging the seeds from watched him closely. them."

early to eat those," neighborly fashion.

early for you mine," Chattered, "but they good to me," teasingly as up another ried it up stump.

stored up



another, the pile of green cone scales on the top of the stump grew high, and still he did not show any signs of stopping. At last Chatter Box jumped down to get the next to the last one, and Squeaky could not stand it any longer. When Chatter Box started back for the stump Squeaky made one grand dive for the remaining cone, grabbed it and ran for his life.

Chatter Box saw him and gave chase. It was a close race, but Squeaky won out to his hole, bumped into Mrs. Squeaky who was waiting for him in the doorway, and they both rolled down the passageway together.

Safe inside their snug little home with the cone, they proceeded to shell out the seed while Squeaky told his little wife all he had learned, and they both laughed at Chatter Box who was still scolding out on the old rotten log. (To be continued)

THE HARMLESS FIRE-BUG

The lightning bug flew through the woods,

And flashed his little lamp;

"This is the thing to use," says he,

"The woods are very damp."

He chuckled to himself and said,

"The woods will soon be drier,

Then this is still the thing to use,

So's not to start a fire.

"So rain or shine or wind or calm,

My little lamp's the best;

No man-made lantern, match or flash

Can ever stand the test."

Problems For Boy Scouts

1. What conifers lose their needles every winter?
2. Does the snow lie deeper in the woods or in the open?

(To be answered in the next issue)

GATHER WALNUTS FOR PLANTING

BLACK walnut is of the most profitable woodland and pasture trees. It is rapidly becoming scarce on account of the important part it has played in the war, and the strong demand for the wood for cabinet material, caskets, musical instruments, furniture, etc.

The nuts for planting should be selected, so far as possible, from vigorous trees producing good-sized nuts in abundance. If squirrels and hogs are not troublesome, the nuts may be planted this fall, putting two nuts in a hole and covering with about four inches of soil well firmed. In many places the safest method is probably to keep the nuts over winter and plant them in the spring. For this purpose a pit, dug eight to twelve inches deep in a well-drained, cool location, is a desirable storage place. A layer of nuts, two nuts deep, is covered with an inch of sand, and so on until all the nuts are stored, after which soil should be mounded over the pit to shed excess moisture. Nuts mixed with sand will keep quite satisfactorily in a cool cellar. A bushel of walnuts contains from 1,100 to 1,400, depending upon the size of the nuts, or enough to plant an acre, using two nuts in each hole, spacing the latter three feet apart each way.

THE TIMBER CENSUS IN THE NORTH-EASTERN STATES

From an address by A. B. Recknagel, at the Annual Meeting of the Society of American Foresters, December 27, 1918.

SHORTLY before the Germans launched their drive on the vernal equinox, which, as far as they were concerned, ended in a winter solstice known as an "armistice," certain members of the War Committee of the Society of American Foresters foregathered in the New York office of R. S. Kellogg and planned another drive which, it is hoped, will result far more favorably.

The objective was nothing less than a timber census of the Northeastern States. Statistics on the *consumption* of forest products we have—excellent statistics—but we need to know with equal accuracy as to the existing *supplies* of timber so that we may balance supply and demand through the adoption of a proper forest policy. The meeting was held on April 25, 1918. Those present represented the States of Maine and New York and a plan of campaign was developed for securing the desired data. The chairman of the War Committee, Prof. Toumey of Yale, was unable to attend, but shouldered the burdens of securing the needed data for the States of Massachusetts, Rhode Island, Connecticut, New Hampshire and Vermont by enlisting the co-operation of various organizations in these States.

The campaign developed rapidly and met with an unexpected degree of support on the part of timberland owners. Forms for reporting estimates were prepared and sent out in each State by some recognized agency. In New York Mr. C. R. Pettis, Superintendent of State Forests sent out, under date of May 15, a strong letter, stressing the urgent need for reliable information about merchantable standing timber.

What followed up to the ending of the war, has been told by Prof. Toumey in the November issue of the *Journal of Forestry*, issued by the Society of American Foresters.

On the day following the signing of the armistice the "Census Makers" gathered in Boston and, with the joyous shouts of the peace revel in their ears, decided that despite the end of the war the valuable data accumulated in the census should not be lost but that the work should be carried to completion. It was left to each State to compile the data and to publish them through whatever agency in the State seemed most appropriate. Then the Forest Service will probably publish a summary for the entire Northeastern region. The Reconstruction Conference of the National Lumber Manufacturers' Association in Chicago on November 23, 1918, passed a strong resolution endorsing the plan.

So the matter stands at present. Conceived as a piece of war work the timber census gives promise of filling a peace need as well.

FALL or winter pruning of grape vines may be done at any time during mild weather from November to March, while the vines are in a dormant condition.

THE SANDPIPERS

(FAMILY SCOLOPACIDAE)

BY A. A. ALLEN, PH.D.

ASSISTANT PROFESSOR OF ORNITHOLOGY, CORNELL UNIVERSITY

WHEN the waters in our lakes and ponds recede during late summer and leave exposed great areas of soft mud, they would become very unattractive were it not for the flocks of graceful little birds that assemble upon them. With jerking heads or tilting tails they trot along the soft oozy shore in search of the larvae that lie concealed in the mud. These are the sandpipers. There are tiny ones, smaller than spar-

phalaropes, lobed toes, but they are all very similar in general appearance.

There are about 100 species of sandpipers, most of them being confined, except on their migrations, to the northern parts of the Northern Hemisphere, many of them nesting within the Arctic Circle. Forty-five are found in North America, some of them confined to the West, some to the East, but the majority nest in the far north and follow in their migrations the routes of abundant food. Thus they are more common along the sea coast than inland.

They are great travellers, these sandpipers, perhaps the greatest of all, some of them traversing the entire length of both continents in their migrations. The majority of species spend the summer on the barren grounds of the far north and, in the fall, though some of them stop on our Gulf Coast, many speed their way across the Caribbean to northern South America and some continue down the coast even to Chile and Patagonia. When they leave their summer homes they have stored up great layers of fat, but when they reach their winter quarters, the majority have grown thin. Particularly is this true of those that follow the route of the golden plover on the long flight from Nova Scotia to Venezuela or from Alaska to the Hawaii



"SANDPEEPS" IN FLIGHT

Least and Semipalmated Sandpipers showing the characteristic pointed wings of the family.

rows, and there are larger ones as big as pigeons, sometimes in separate flocks, sometimes all mingled together. They are brownish or gray above and white below, with slender legs and long slender bills, and except for their size, all look much alike. It takes a sharp eye to distinguish the different species when they have assumed their fall plumages. But it is in this plumage that we see the most of them for on their way north in the spring, the waters are high, mud flats are scarce, and they are in a hurry to get to their nesting grounds. In their breeding plumage many of the species are strikingly marked with black or chestnut and are easily distinguished from one another, but in the fall they constitute a post-graduate course in bird study that appeals to those who have passed through the warblers and the sparrows and the flycatchers and are ready for more difficult problems.

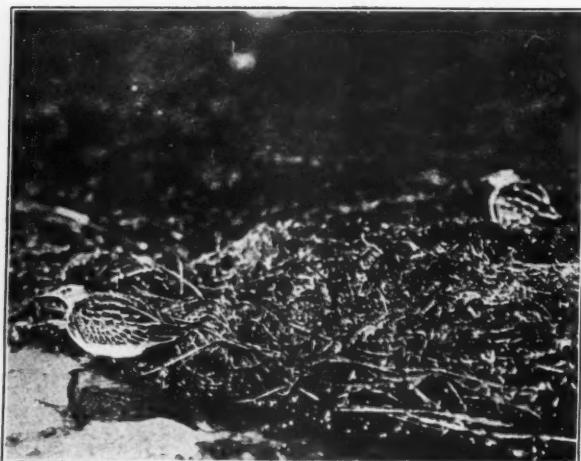
Together with the plovers, the avocets and stilts, the turnstones, and the phalaropes, the sandpipers make up the great group of shore-birds. The plovers have much shorter bills than the sandpipers, the avocets and stilts, much longer legs, the turnstones squarish bills, and the



THEY MAKE THE SHORES ATTRACTIVE

Stilt Sandpipers are feeding in a close flock at the right; a dowitcher, yellow legs and Semipalmated Sandpipers are at the left, black terns are in the background.

Islands without a single stop. Twenty-five hundred miles in a single flight seems almost incredible, but such is the accepted belief today with regard to the plover and other shorebirds that accompany it. Indeed they have been seen passing over the Lesser Antilles as though untired and continuing on to the main land of



HIDING IN THE OPEN

Pectoral Sandpipers crouch on the shore to escape detection.

South America though good stopping places were plentiful. When instinct compels birds to make such a trip, it is little wonder that it carries some of them on southward far beyond the bounds of reason and good sense, even to Cape Horn, a distance of perhaps 9,000 miles from their nesting grounds.

In former years all of these shorebirds were considered game birds and were shot in such numbers that some of the species were nearly exterminated. This was possible because they ordinarily fly in close flocks so that many can be killed at a single discharge of the gun. Now, through the Migratory Bird Treaty with Great Britain, they have passed under Federal jurisdiction and all save a few species are given protection. Of all the shore-birds, only the yellow legs, the Wilson's snipe, the woodcock, and the black-bellied and golden plovers remain on the game list for which there is an open season.

The commonest species of sandpiper is the spotted sandpiper, "tip-up" or "teeter-tail" as it is variously called. In summer it is found along almost every stream and lake from Northwestern Alaska to Louisiana, and in winter, from Louisiana to Southern Brazil. It can be distinguished from the other sandpipers of its size, about that of a sparrow, by the conspicuous spots on its underparts. In the fall, however, these are lost and it would be hard to identify were it not for its constant teetering. Several other species, and especially the solitary sandpiper, jerk their heads when they walk, but the spotted teeters its tail or its whole body as

though it had difficulty in balancing on its slender legs. It flies with a peculiar hovering movement of its wings which show a narrow gray line down the middle.

The solitary sandpiper is perhaps the next most common species inland. Although it probably does not nest in the United States, it is very late in moving northward in the spring and early in returning in the fall so that except for the month of June, it is nearly as common in most places as the spotted. It is somewhat larger and darker than the spotted sandpiper and lacks the spots on its underparts and shows conspicuous white outer tail feathers when it flies. It is the one sandpiper that seems to prefer woodland pools and it ventures among the trees quite readily.

The yellowlegs are similar in color pattern to the solitary sandpiper, but are grayer and have whiter tails. There are two species, the greater and the lesser which are almost identical except for size. Indeed when there

are no other birds about so that the size can be correctly judged, it is sometimes impossible to tell which species is under observation. When they take flight, their notes will often announce them for the smaller species never gives but two notes together, "wheu - wheu," while the greater gives three or more in succession, "wheu, wheu-wheu-wheu-wheu, wheu, wheu-wheu." The yellowlegs have withstood the onslaught of the gunners better than any of the other species and are still



OCTOBER MORN

A lesser Yellow Legs feeding in the early morning.



THE WHITEST OF THE SANDPIPERS—THE SANDERLING

It is likewise the only Sandpiper with but three toes. It prefers the drier sandier shores.

fairly abundant in suitable places during May and again from August to November. Indeed they have been much more successful than the knot, the willet, and the Bartramian sandpipers.

The knot which is about the size of the yellowlegs, but with a shorter bill and legs, formerly occurred in

close them. They have a striking call during the breeding season like the syllables "chr-r-r-r-ee-e-e-e-o-o-o-o-o-o-o," given with a rising and falling inflection. Indeed most of the shore-birds have striking whistles and as they are quite easily imitated and decoy to the imitation, it has made their extermination all the more possible.



A "SANDPEEP" ON THE SHORE

The Least and Semipalmated are the smallest of the Sandpipers. This is the Least.

flocks of thousands along the coast, but has been so decimated that it can no longer be considered a game bird. It has the unfortunate habit of flying in very dense flocks so that many could be killed at a single shot. In the spring the underparts of the knot are a beautiful rufous, giving it the name of robin snipe.

The willet is considerably larger and has striking black and white markings in its wings. It was formerly found along the coast as far north as Nova Scotia, but is now rare north of Virginia.

The Bartramian sandpiper or upland plover as it is better known, is about the size of the yellowlegs, but is brown instead of gray and has a shorter bill. It is more a bird of the interior than the other sandpipers and was formerly very abundant throughout the grassy plains and pastures of the Mississippi Valley. It is ordinarily a shy bird, but will permit one driving or on horseback to approach very close. Market hunters took advantage of this in former years and nearly exterminated the species. In a few places, however, they are still firmly established and now that they are protected by the Federal Law should increase. Like the willet they always stretch their wings straight up over their backs when they alight and then

broad band of black across the belly, but in the fall it becomes entirely gray above and white below. It can be distinguished from the others of its size by its slightly decurved bill. The remaining sandpipers are too numerous for full description, but the white-rumped is very similar to the red-backed in the fall, the Baird's that

The smallest of the sandpipers, called "sandpeeps," are the least and semipalmated which in outward appearance are very much alike, the semipalmated being somewhat grayer. They are usually seen in flocks which along the coast are often of considerable size. A much whiter species, somewhat larger, is called the sanderling. It prefers the drier, sandier shores, whence the name.

The pectoral sandpiper has almost the exact color pattern of the least sandpiper, but is much larger. The red-backed sandpiper is conspicuously marked in the spring with reddish-brown upper parts and a

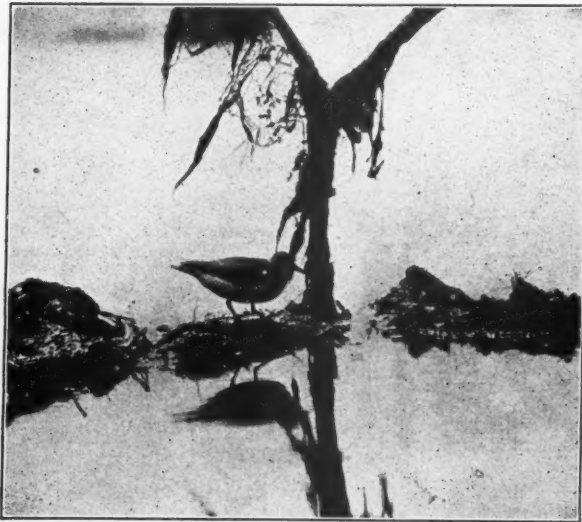


ANOTHER "SANDPEEP"

But this time a Semipalmated Sandpiper—it has a somewhat heavier bill and is somewhat grayer than the Least.

resembles a small gray pectoral, and the stilt sandpiper with dark legs that resembles the yellowlegs might be mentioned. Then there are other sandpipers that have departed from the type of those thus far mentioned. The curlews, for example, are considerably larger and

browner and have strongly decurved bills. Like the willet and upland plover, the curlews were formerly abundant, but are now scarce. Indeed, one species, the eskimo curlew, is believed to be extinct. The godwits have slightly upcurved bills and the dowitcher, Wilson's snipe and woodcock have exceedingly long probe-like bills. What has been said regarding the curlews applies also to the godwits, for while the marbled godwit is



NO SPOTS ON THIS

Fall styles with the spotted Sandpipers permit of no polkadots. A September Spotted Sandpiper.

still fairly plentiful in the Northwest, the Hudsonian godwit is one of the rarest shore-birds.

The dowitcher is more like the other sandpipers and often associates with them on the open mud flats, but the Wilson's snipe prefers the grassy marshes and seldom ventures out on the bare flats except early in the morning and at dusk. The Wilson's snipe is a better game bird than the other small sandpipers because of its habits. It sometimes travels in flocks, but they scatter when feeding and do not get up together nor afford a "pot shot." They ordinarily escape detection until they jump with a somewhat startling "kick" or "bleat" and quickly get off on a zigzag course that puzzles the hunter.

Even more aberrant and the best game bird of them all, is the woodcock. It never ventures out into the open except after dark, but spends the day usually in alder thickets, though sometimes at a considerable distance from water. Because of the nature of its haunts, it is a difficult target for the hunter. It has, however, the unfortunate habit of never flying very far and allowing itself to be flushed and shot at time and again. Once in its winter quarters in the South, a bird remains in the same thickets until time to move northward again. Because of this, in many places hunters with dogs have been able to exterminate nearly all the birds wintering in some localities. This has resulted in woodcock becoming extremely scarce in most places.

The woodcock is one of the most protectively colored

birds that we have and on the nest it frequently relies entirely upon its coloration and will allow itself to be touched while incubating. It is said of the European woodcock that when it is frequently disturbed with its young on its feeding grounds it will remove them to some upland thicket for the day and bring them back to the feeding ground at night, carrying them between its thighs. Both the snipe and the woodcock have flexible bills and the tip of the upper mandible can be moved separately from the rest of the bill. This permits them to seize the worms or grubs which they find by probing in the soft soil. The tips of their bills are filled with sensory pits covered with a soft membrane which enables them to locate their food.

With the exception of one species, all of our sandpipers nest on the ground. The exception is the solitary sandpiper, which, so far as is known, utilizes the old nests of other birds like the robin and grackle, sometimes at a considerable distance above ground and away from the water. All sandpipers lay three or four eggs, very large for the size of the bird, which are sharply tapered so that they will fit together like the pieces of a pie. Other-



A SIMPLE LITTLE HOME ON THE SHORE

Sandpipers do not build elaborate nests but merely line a depression with a few straws. They lay large pointed eggs that fit together like the pieces of a pie. This is the nest of a Spotted Sandpiper.

wise the old bird would be unable to cover them. They are usually buff or tan in ground color, or with some species greenish, heavily spotted with black or brown.

Young sandpipers, when hatched, are covered with down, often of a striped pattern, and are able to run about and follow their parents or even swim across streams. The first plumage is similar to that of the adults in the fall and in the spring all molt into the

breeding plumage. If there is a bright plumage, females don it as well as the males. Indeed, among the phalaropes which are closely allied to the sandpipers, the females are brighter than the males. It is interesting

and fly larvae and a few of them frequent the uplands and catch grasshoppers and other destructive insects. On the whole, however, they commend themselves to us more because of their graceful appearance and charming



HOME AGAIN

The Spotted Sandpiper returns to its nest and inspects it closely to see that all is well before taking its place upon the eggs.

to note that with them the males are left to incubate the eggs and care for the young while the females assume no responsibilities after laying the eggs.

The food of the sandpipers includes many mosquito



THERE'S NO PLACE LIKE HOME

For keeping a Sandpiper busy. She has only four eggs, but they are so large that she covers them with difficulty.

ways. Our shores and mud flats would be desolate indeed with no birds to enliven them and most people are glad to see all of the smaller species removed from the game list.

THE meeting of the newly organized Tennessee Forestry Association, which was to have been held in December, has been postponed to some time in January. It is proposed that the By-laws and Constitution shall be broad enough to include the interests of the lumbermen, timber owners and farmers, as well as all those interested generally in the knowledge of tree growth. Conditions in Tennessee promise bright prospects for a splendid working forestry organization in the state.

ONE of the principal markets for American lumber will be found in Italy, according to a special cable to the Italian-American News Bureau. Reconstruction work in the recently invaded territory to the northeast of Venice is already making large demands for building material, and plans for building projects contemplate the expenditure of millions of lire by the Italian government.

AS this magazine goes to press, comes the first acknowledgment from overseas of the Christmas boxes sent the boys by the Welfare Committee for Lumbermen and Foresters in War Service—From R. Aaronson, of the Eighth Company, Twentieth Engineers. "Accept my kindest wishes for the New Year. Thanks very much for the package. It sure makes the fellows feel good to know that the folks back home are thinking of us."

THE building of wooden ships is likely to continue for years to come, according to reports from the various ship yards throughout the country which are constructing ships for the Emergency Fleet Corporation, and have completed only 50 per cent of their contracts.

PLANT WALNUT TREES

PRUNING FOR PROFIT

ARE YOU RAISING FRUIT OR WOOD?

BY WILL C. BARNES

THE overland train slipped into an obscure siding on the edge of a little town in the fruit belt of eastern Kansas. On the platform of the observation car, several travelers watched a man at work in a nearby orchard pruning apple trees; "dehorning 'em" a western cattle man called it.

Naturally the conversation drifted into the subject of pruning. One of the party, a Boston merchant, remarked that, until recently he had the idea that pruning was a "carpenters job" pure and simple. "I know better now," he explained, "thanks to some rather practical lessons received while on this last trip to the Pacific coast." Some one pressed him for particulars. He lighted a fresh cigar and settled back in his chair.

"For fifteen years," he began, "I have been the proud possessor of a twenty acre orange grove in southern California. During all these years I have seen it only twice, but have been giving it 'absent treatment' through various alleged 'orange grove experts,' the last being a

man whose main qualifications for the job of caring for it, were his absolute integrity, and ability to distinguish between his own and his employers money, and an economical nature that Harry Lauder himself would envy. During the first six or seven years of ownership, I went through the whole gamut of experience in 'hiring and firing' a genial lot of pirates and spendthrifts, whose one ambition seem to be to draw their pay and give in return the least possible amount of labor. Thus when I 'met up' with this paragon of economy and honesty I

waived all other requirements and turned the place over to him with a thankful heart.

"I soon found that his economical ideas permeated his whole system, for his letters and reports were few and short and if brevity is the soul of wit he is at once the wittiest man ever.

"After several years of his management I decided to visit the place and see for myself what was happening. Across the road from my place was a grove whose owner was reputed to be making big money out of his trees. To him I went for advice.

"Your trees look so ragged and uneven in their outlines' I ventured, pointing to my own which, according to my innocent eyes were better looking being as shapely and even as a lot of Christmas trees.

"Yours do look better from an artistic standpoint, but let me show you why that isn't the ideal shape for an orange tree.' We walked over to one of his trees. It was almost ragged in appearance and instead of the dense wall of green which



EUREKA LEMON TREE—BEFORE PROFESSIONAL PRUNING

One of the lemon trees told of in this story—so shapely and attractive to the eye!

formed a fairly impenetrable mass on the outside of my trees, his were open to the heart, and one could see deep into them at any point. There wasn't a dead limb on one of them, while they bore plenty of young vigorous limbs all new growth. The sunlight reached every part, inside and out, and each tree was loaded with fruit.

"Then we walked over to my side of the road. The tall shapely trees looked wonderfully attractive to me. We got down on our knees and crawled under the low sweeping boughs into the tent like center. Instead of

young green growth there was nothing but dead limbs in the center and the shade was so dense that the sunlight scarcely penetrated into the heart of the tree.

"'A victim of poor pruning' was his remark. Then he showed me how the pruning must have been done by inexperienced men for instead of cutting the limbs off as close as possible to the body of the tree, most of the stumps had been left an inch or two long. This prevented the bark of the tree from healing over the wound left by the operation, nature's remedy, and each stump was rotting at the end, an ideal place for disease to get a foothold.

"Then and there I learned that to produce citrus fruits you must open up your trees to the sun and air, and by

know it all, want \$3.50 a day. Whats more, the Japs go right ahead with their work and get done, while the Dagos fool along on the job, look at the trees, stand off and gaze at 'em as if they were trying to paint a picture and them trees were models.'

"I said nothing, for it seemed hopeless to try to educate the man who as the bible says has neither the hearing ear, nor the seeing eye. Years of work in an orange grove had apparently not taught him that there was a scientific side to pruning and it did not merely consist of sawing off a few limbs here and there, with the main idea of securing a tree shaped like a toy Christmas tree, regardless of the fact that the tree's great purpose in life was presumed to be fruit production.



THE SAME TREE, BUT AFTER THE VISIT OF THE PROFESSIONAL PRUNERS

A total wreck—ragged and unsightly to the eye. It is the same Eureka lemon tree in my grove, after manhandling by those Corsicans.

keeping the dead wood cut out, furnish plenty of young vigorous limbs upon which to grow it. To an up-to-date orange grower, dead wood on an orange tree is anathema.

"I went after my man on the question of pruning. 'Who does our pruning?' I demanded. 'Japs, mostly,' was his reply. 'Are they the best for the work?' I was inexorable. 'Well—perhaps they aint as scientific as some others but,' and here his penchant for economy came to the front, 'they do the work just as well, as far as I can see, and charge a whole lot less.' 'For instance,' I persisted. 'Well, the Japs charge \$2.25 a day for pruning, while the Sicilians and Italians who claim to

"The next day in answer to my request my friend sent a Corsican pruner to see me, a man born and raised in the citrus groves of his native land. He had great hoops of rings in his ears, was dark and swarthy in complexion and reminded me of the three bandits in Fra Diavolo. Also he weighed about 200 pounds, was not an inch over five feet four in height and his build recalled a boyhood recollection of a picture in a Sunday school book of the mighty Sampson engaged in his cheerful task of tearing from their roots the gates of Gaza.

"Also he arrived in a Ford, which impressed me. The Japs came on foot. He looked over my splendid lemon

trees and shook his head. Crawled on his hands and knees under their low sweeping boughs to get inside; peered up through their dim interior and shook his head still more. Every time he did so those great gold ear-rings waved and blinked in the sunlight like a section of the jewel tower at the Frisco fair.

"With him was a young chap to whom he occasionally confided a few thoughts in their own language. I began to feel uncomfortable, as if I had perpetrated some outrage against them both, and that the outrage had something to do with the way those trees had been pruned. Nor was my judgment wrong. In his experienced eyes a gross outrage had been committed upon every tree in the whole grove. He was arrayed in a sky blue suit of clothes, a stiff linen collar at least three and one-half inches high encircled his short brown neck and a brilliant red four-in-hand tie lit up his front like an Arizona sunset. It was a very hot day, the trees were dusty from the long rainless spell, and when he finally emerged from his last inspection he looked somewhat the worse for wear. His collar was wilted to a rag, that sky blue creation with trousers that measured more across the seat than they did in length—peg tops of the most exaggerated type—a favorite cut of his class, was dusty and laced with cobwebs. He mopped his rosy face with a pink handkerchief that after the operation reminded you of the print shop roller towel. Breathlessly I waited for his verdict.

"'You trees bad shape,' he blurted out, just like that, as if to give me the worst right at the beginning. 'Looka like some wood choppa man done da prune.' He waved his arms towards the lemons. 'He nicea looka trees for park, mabbeso, but no gooda for fruits. 'Dat tree,' and he picked out one of the most shapely in the lot 'dat

tree take one gooda man four hour to prune right, maybe so do four tree one day—dat a gooda work.'

"I did some mental figuring. Four trees divided into \$3.50 meant almost 90 cents a tree, there are 80 trees to the acre—\$72 an acre for pruning. I hoped my man had not heard the time limit set by the gentleman with the ear-rings. I sighed. Experience surely did cost money. Nevertheless my blood was up and I made a bargain for three men to come the next morning and start the work. I didn't get down to the grove until about three o'clock the next day. The rows of lemons were the first trees in the grove to strike the eye as you alighted from the trolley. I glanced towards the place. The sky line seemed to have a strange, unnatural appearance. The first rows of trees looked as if a cyclone had struck them. They stood rough and gaunt, their denuded limbs holding their mangled stumps toward Heaven, as if in mute appeal against such an outrage as seemed to have been perpetrated upon them. On the ground there was apparently more wood than in the trees. In fact, about some of them the limbs made a pile quite as high as the trees themselves.

"Now pruning to me had always meant a gentle lady-like clipping of tips here and there, a sort of polite tree manicuring if you please. This work had apparently been done with a ruthless hand almost heroic in its treatment. But I had determined to go the limit on the reconstruction of my grove and if this was the proper way to do the job I would make no outcry.

"Time however, justified the treatment. My Corsican friend and his fellow conspirators knew their business. Next year those trees will bear fruit on every limb where none has been borne before, for the trees have produced new wood so fast you can almost see it grow; fruit bearing wood of the best kind."

NEXT SEASON AT GLACIER

SECRETARY of the Interior Lane announces that the enterprises engaged in the accommodation and entertainment of tourists at Glacier Park have already completed arrangements for the 1919 season, which begins June 15 and ends September 15. All hotels and chalets will be open and there will be adequate transportation facilities on the road and trail systems. The usual rates for service will prevail.

The National Park Service plans to make many new trips available for Glacier Park visitors next summer. In this connection, a new trail across the Continental Divide through Logan Pass, connecting the St. Mary Lake region with Granite Park and Lake McDonald, is worthy of special mention, as it promises to be an exceptionally popular feature in a successful after-the-war season.

A FOREST FIRE IS A REAL ENEMY

Carelessness causes many fires. Are you careless? Never leave your camp fire without making sure it is completely out. We won the war to defend Democracy. Must we now fight forest fires? Are you careful with fire in the forest? Burning matches cause fires. Break your match in two before throwing it away. If you discover a forest fire, put it out.



PHILIPPINE FORESTERS ARE PATRIOTIC

THIS IS THE FLOAT OF THE BUREAU OF FORESTRY IN THE FOURTH LIBERTY LOAN PARADE ON OCTOBER 12, 1918, AT FAR-AWAY MANILA.

PLANTS THAT OCCUR IN BOTH NORTH AND SOUTH ATLANTIC STATES; TOGETHER WITH NOTES ON THE AMERICAN SPARROW HAWK

BY MAJOR R. W. SHUFELDT, M. C., U. S. A.,
MEMBER CHICAGO ACADEMY OF SCIENCES, ETC.

(Photographs by the Author)

IT IS a well known fact, especially in the northern sections of the country, that some of the plants blooming during the early summer months have very inconspicuous flowers, but when autumn comes around and these same

plants go to seed, their seed-pods stand among the most ornamental growths of the kind met with in nature. One of the most conspicuous of these is seen in the Climbing Bitter-sweet (Fig. 2), whose flowers are notably small, greenish, and in little clusters at the termination of the branches. Hardly anyone would notice them, unless specially searching for a specimen. However, late in the fall an entire transformation takes place in this "twining shrub," as some botanists have called it. Its beautifully shaped leaves turn to a brilliant Naples yellow and its

seed-pods to a deep orange. Nor is this all; for the latter, upon splitting open into three partitions, display the gorgeous scarlet-tinted covering to the seeds. The dis-

play they then make is one of marked beauty, and branches—or runners—bearing the pods are gathered by many for home decoration. It is truly wonderful the length of time these seed-pods will retain their original

colors without fading in the least degree—sometimes for many years. A fine branch, at hand at this writing, was gathered some ten years ago in New York State, yet the yellow and orange tints are as intense as the day it was gathered.

Beyond the fact that this vine is related botanically to the Spindle Tree (*Eoomy-mus*), it is difficult to understand why some insist upon calling it a tree—the "Staff Tree." Doctor Gray called it a "twining shrub." Matthews speaks of it as a "twining, shrubby vine, common on old stone walls and roadside thickets, and sometimes



A GRANDFATHER CHESTNUT ALL READY FOR THE FIRST SNOW BLANKET

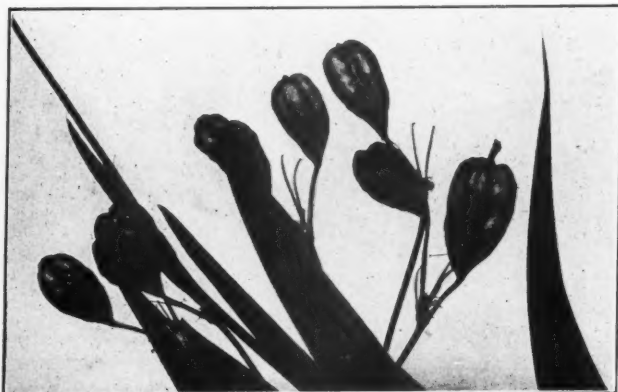
Fig. 1—Along the hill-top, just over the western boundary of Rock Creek Park, Washington, District of Columbia.

climbing trees to a height of twenty or more feet. The light green leaves are smooth and ovate, or ovate-oblong, finely toothed, and acute at the tip; they grow alternately

and somewhat in ranks owing to the twisting of the stem. The tiny flowers are greenish white, and grouped in a loose, spike-like terminal cluster; the five minute petals are finely toothed along the edge, and the five stamens are inserted on a cup-shaped disc in the manner explained."

Bitter-sweet vine is often seen growing over the old stone walls in New England, the deep gray of the latter affording a fitting background for the matured fruit in the autumn. It would appear that it is not found in nature further south than North Carolina, while it ranges westward to New Mexico and north to the Dakotas.

It is a wide span between *Celastrus* and any of the Iris family, a species of which is next to be considered—though only in part; that is, attention is invited to its remarkable fruit, which, in any instance, so closely resembles a big



THE IRIS FAMILY IS KNOWN AS THE *Iridaceae*, AND ITS BEST KNOWN GENUS IS *Iris*, WHICH HAS BEEN CREATED TO CONTAIN THE IRISES, THE FLAGS, AND THE FLEUR-DE-LIS

Fig. 3—One of the daintiest plants of this group is the Blackberry Lily (*Belamcanda chinensis*), shown here just before the seed pods open up.

ripe blackberry. (Figs. 3 and 4.) Next summer its flowers will form the subject of one of our illustrations, as specimens of them were not obtained during 1918. We may say here, however, that its flat, blade-like leaves closely resemble those of the common iris or Fleur-de-Lis, the favorite flower of France; some of these leaves may be seen, in part, in the cuts. In passing, it may be said that the flowers of the lily are of a deep orange, finely and irregularly speckled with deep crimson and purple. On an unnumbered plate, Neltje Blanchan gives us a pretty illustration of them, though it has suffered through undue reduction in reproduction. This authority informs us that the plant originally came from China, and was first reported as a wild flower at East Rock, Connecticut; next on Long Island, and then at Suffern, New York. It is surely a very beautiful addition to our native flora, and it is hoped that the Orient will favor us in a similar way with still other plants.

The genus of the Iris family containing the greatest number of species is *Sisyrinchium*, the Blue-eyed grasses, of which Gray gives some fourteen different kinds for eastern United States alone, against the single species of the

Blackberry lily described above. The flowers of these two genera are somewhat alike in form, and quite different from an iris or Fleur-de-Lis.

Our remarkable parasitic plant, the common Dodder (*Cuscuta groenovii*), was figured and described in a recent issue of AMERICAN FORESTRY; but who would for a moment think that this curious murderer of other plants was a member of the

same family as the beautiful morning glories (*Ipomoea*), or the bindweeds, and the sweet potato vine? Yet all these plants and still others have not a few characters in common, which, from the viewpoint of the scientific botanist, certainly throw them into one and the same assemblage—the *Convolvulus* family; they owe this name to the fact that in all of them the corolla is *convolute* or twisted in the bud. Two such buds are here shown in Figure 5, which illustrates our common Bindweed. All morning glory buds are twisted up like this, as are the little scarlet ones of our Cypress Vine; and there are a great many plants of



OUR *Celastraceae* OR STAFF TREE FAMILY HAS SOME CURIOUS PLANTS GROUPED IN IT. THIS IS THE SHRUBBY BITTERSWEET, A STOUT VINE, NAMED THE "STAFF TREE" (*Celastrus scandens*)

Fig. 2—It has also been called the Climbing Bittersweet, or the Wax-work vine. Its leaves are beautiful and so are its remarkable berries.



SOME OF THESE CERTAINLY LOOK LIKE RIPE BLACKBERRIES, AND SO WILL ALL OF THEM WHEN THEY FULLY OPEN

Fig. 4—The plant originally came from Asia, and its generic name is of East Indian origin. It is known as the Blackberry Lily (*Belamcanda chinensis*).

this group in other countries besides the United States.

In the case of the Bindweed, the flowers are of a glistening white, and for this reason the plant may be recognized at a long distance. It often climbs and masses upon other plants, cutting off the sunlight from the latter. Then, again, we may find it in the most shady corner of some deep wood, and the example here shown flourished in such a place, being photographed *in situ* with no little difficulty. Finally, we may find bindweed growing in great masses in an open field, with hundreds of its lovely, immaculate flowers glistening in the bright sunlight. Sometimes these blossoms are tinged with pink, and other species possess still other characters. The one here shown is the common Hedge Bindweed (*C. sepium*); it may become ten or twelve feet long, while other species, such as Trailing Bindweed (*C. s. repens*), the Small Bindweed (*C. arvensis*), and others, rarely exceed a yard or less in length. Most of the larger species of bees are great patronizers of the representatives of this family of plants. It is by no means an unusual sight to see a Dodder vine twisting itself all over a Hedge Bindweed, exhausting its life juices—and to think that both are members of the same family! It might well be called a kind of floral fratricide.

Our Cypress Vine (*Ipomoea quamoclit*), another convolvuline species, already referred to above, with its pretty little scarlet flowers, came from Tropical America, and now flourishes in many places in the South. We frequently see it growing over garden fences and similar places. Its flowers are said to be white in the case of some plants, and there are other species and subspecies (varieties) of it.

We have many interesting plants in the Lobelia family, several of which have already been figured and described in previous issues of AMERICAN FORESTRY. An average example of the Great Lobelia is here reproduced in Figure 7; and this is a plant which, in favored spots, may occur in great numbers, producing, when in full flower, a blaze of splendid sky-blue, which may be seen a long distance off. Sometimes its flowers are pure white; and, whatever their color may be, they

are usually found growing in moist or wet places.

When our Ruby-throated Humming-bird of the East was more plentiful than it now is, it was frequently seen visiting these flowers of the Great Lobelia, as their tube-shaped corollas constituted the very style of flowers that these little gems of the bird-world fully appreciated. The cross-fertilization of the Lobelia is, however, principally accomplished through the agency of bees of various species and certain large flies.

THE AMERICAN SPARROW HAWK

BY MAJOR R. W. SHUFELDT

(Photograph by the Author)

WE have a splendid array of falcons and hawks and their near allies in the bird fauna of this country, and of all these many species our Sparrow Hawk is not

only the smallest but decidedly the handsomest in plumage. Upwards of a dozen vernacular names have been bestowed upon it in different parts of the United States, while its scientific name, given it by Linnaeus generations ago, *Falco sparverius*, is the one by which every ornithologist knows it the world over.

In length, the Sparrow Hawk measures less than a foot, and the plumage color-pattern is different in the two sexes. Both are very handsome, though the male is rather the more striking in this respect. An adult male, in full breeding-feather, has the top of the head of a clear ashy blue, all to a central patch, which latter is a bright chestnut. The back of the neck and the sides are of a dingy pale yellow, with an ashy area on the former. The entire back and shoulder is of a clear chestnut rufous, transversely barred with black. Wing-coverts and secondary wing-feathers ashy blue like the crown,

the feathers each dotted with black; the flight-feathers are dusky, margined with yellowish white. The rufous-colored tail is tipped with white, and embellished with a subterminal bar of black. There are markings of black on the side of the head and nape. Breast, and to a degree below it, pale rufous or rusty, and then whitish to the tail. All of this area is spotted with black, beginning above, with fine dots on each feather, and ending below with much larger ones. Tail-coverts beneath, pure



THIS LOVELY WHITE FLOWER IS OF THE VINE KNOWN AS HEDGE BINDWEED, WHICH, IN THE SOUTH, MAY BLOOM UNTIL VERY LATE IN THE SEASON

Fig. 5—Bindweeds are close relatives of the Morning Glories and Cypress Vines; they are all grouped in the *Convolvulaceae* or the Convolvulus family.

white. Irides, rich brown; feet, yellow with black claws, and a yellow area around either eye as well as the base of the blue-tinted beak.

In the female, fine black bands mark the entire tail, the terminal one being broad. She has a longitudinally streaked crown, with pale brownish streakings on a yellowish-white breast and lower parts. Her shoulders are rufous red, while in most other respects she more or less nearly resembles the male in her coloration.

Our Sparrow Hawk chooses curious places sometimes wherein to lay its clutch of beautifully marked eggs, the ground-color of which usually is a cream-white. Occasionally the female is satisfied with a deserted hole of any of our larger woodpeckers, while any other hollow in a tree has been made to answer. The eggs have also been found in rock cavities, and in various holes in clay and sand-banks, while nesting-boxes set up for other birds have been selected; and when these were not available around the home, the pair will even choose any old cranny under the barn-roof or a similar place in any of the larger out-houses.

Judging from the above, it is not at all difficult for us to imagine that our little Sparrow Hawk has a strong leaning toward real sociability with respect to his arch enemy—man. Many years ago, I had in my possession a tame one, which was kept for several months, and during all that time it was one of the most interesting little pets imaginable. There was no difficulty whatever in my making a number of fine photographic negatives of him, and the picture obtained from one of these has been reproduced as an illustration to the present article. Perhaps I may be pardoned for the pride I felt when, with others of a set of animal pictures, it won a prize at an exhibit given under the auspices of the Aintree Photographic Society at Liverpool in November, 1898 (Class "K")—twenty years ago.

Only at exceptional times do Sparrow Hawks prey upon our small song birds, and upon still rarer occasions

very young chickens or ducklings are taken by them from the farm yard. On the other hand, however, this little raptorial prince kills and devours every year simply thousands of field mice, moles, grasshoppers, crickets, and no end of other insects and small mammals, the ravages of which are only too well known to every farmer and agriculturist from one end of the country to the other.

In the autumn, when we observe a Sparrow Hawk hovering in his characteristic way over some corn-field where the grain has been shocked up, and giving vent to his well-known call of *Killy—Killy—Killy*—*Killy—Killy*, we may be sure that he is in quest of

the first field mouse that has the temerity to show itself. Note how he checks himself; and, suspended over one spot on quick-wavering wing, his piercing eyes have detected the unhappy mouse below. Down he comes in a graceful swope—and the distant squeal of the unfortunate rodent is distinctly heard.

On account of this wavering flight, many people have applied the name of "windhover" to the Sparrow Hawk; and, as it is a vernacular name with a reason for it, we may let it go at that. This also applies to calling it the "Kitty hawk," while, as already remarked, it has been given not a few other common names.

In Florida the Sparrow Hawks are said to be smaller than the more northern species, while there are also desert forms of them in the western country; descriptions of these will be found in most works presenting popular accounts of our raptorial birds.

As pointed out in a previous paragraph, the Sparrow Hawk in captivity makes a very engaging little pet. To

bring this about, not a little patience must be exercised—above all else no end of well-directed tactfulness and kindness. As a matter of fact, the history—both written and traditional—of the attitude assumed by man toward any or all of the animals below him in the biological scale, is responsible for the behavior of any particular one of them, with respect to the development of gentle-



GREAT OR BLUE LOBELIA IS A RELATIVE OF THE RED CARDINAL FLOWER, BOTH BELONGING TO THE *Lobeliaceae* OR LOBELIA FAMILY

Fig. 6—It is not difficult to recognize the bright blue flowers of this plant (*L. siphilitica*), of which the example here shown is an average specimen.

ness or ferocity. This applies to the lowest as well as the highest forms, or we might say from insects to the higher apes inclusive. Our literature on this subject—which is both interesting and important—is, as yet, not very extensive. The subject is deserving of far more study and close attention than it has received up to the present time. No one of the vertebrate groups furnish better illustrative examples of all this than do birds. For many years past there has been almost a universal movement on foot to encourage the matter of good fellowship between many species of our small land birds and our own species. At first only a limited number of people entered the field to bring this relationship about where possible, and it was chiefly accomplished through placing attractive foods for them in convenient places out-of-doors; through the establishment of bird

homes in the trees and elsewhere, and the feeding of many birds in the wintertime 'at close quarters in the

open. At this writing this is a very common practice all over the country, and it is truly remarkable to note the beneficial and most interesting results.

Many explorers of new lands have frequently noted how tame all the birds were that they came across in places previously entirely unknown to man. It was as true of land birds as of the marine forms or the so-called water birds. One traveler was returning from a spring with a small camp pitcher in his hand filled with water, when some bird, about the size of a robin, came and lit on the brim of the vessel to get a drink for itself. This was on one of the East Indian Isles; and if memory fails me not, the explorer was Alfred Russel Wallace.

But the literature of exploration teems with such accounts, though, unfortunately, examples of the kind are becoming more and more rare. Through the use of traps

and guns and persistent persecution of many kinds, nearly all—indeed all the various species of birds in this



Fig. 7.—The Sparrow Hawk is one of the handsomest of our American Hawks.

country have become extremely distrustful of man. This applies to the representatives of every avian group, from loons to bluebirds; and it is a crying shame that the unfortunate relationship can so easily be proven to be true.

Now, the true raptorial birds and owls form no exception to the above rule, and our little Sparrow Hawks, referred to above, would seem to be especially susceptible to kind and gentle treatment. They make, as stated before, very interesting not to say charming pets for those who have a leaning toward keeping any of our native birds in captivity. A Sparrow Hawk may be kept in a good, roomy cage, or in some place where it can enjoy its outdoor freedom at will. In the latter instance, the bird has been known to return home to roost every night, and to come to call if within hearing. Finally, it will delight in flying down to rest upon your hand or shoulder, to receive any food you may have for it. No doubt, if kept in a large "flying cage," a pair of these birds would breed in captivity. The young are at first feathered with a full plumage of pure white down, and it is a long time before they assume the plumage of either of the sexes when adult. All of this part of their history, with numerous illustrations, I have published in other connections many years ago.



Photograph by Western Newspaper Union

WOMEN FELLING TREES NEAR PETWORTH, ENGLAND

One of the many unusual tasks performed successfully by the women of England was the felling of trees. This picture shows a group of happy workers drawing the felled logs to a train where they were loaded by other women and sent off to the mills.

AN Associated Press dispatch from Birmingham says: Canes of walnut from a tree which stood in front of the Birmingham meeting house before the battle of Brandywine, have been made by a local concern. They were sold at a bazaar for the benefit of war hospitals.

Other canes were sent to French war officials as mementoes of General Lafayette, who was wounded almost within the shadow of the tree.

One cane made of a selected piece of the tree has been sent to M. Jusserand, the French ambassador at Washington.

ACKNOWLEDGEMENT OF CHRISTMAS BOXES

The following cordial letter has been received by the Welfare Committee for Lumbermen and Foresters in War Service thanking the Committee for what was done for the boys at Christmas:

"American Forestry Association,
Washington, D. C.
Gentlemen:

December 31, 1918.

I have just received your cablegram announcing that 200 additional Christmas labels from forestry troops in France, received too late for the shipment of boxes, have been responded to with Christmas cards and a very generous money gift. The American Forestry Association has certainly been a most generous and warm-hearted Santa Claus for the forestry troops in France at this Yuletide period. I wish to thank you in behalf of the men in the 10th and 20th Engineers and the other troops working with them; and I assure you that we will all carry very grateful memories of the friendship and interest shown in our work and in us personally by the Association.

Very sincerely yours,
Lieutenant-Colonel Engineers." (Signed) A. B. GREELEY,

TO PURCHASE ADDITIONAL LANDS FOR EASTERN NATIONAL FOREST

THE National Forest Reservation Commission has just approved for purchase 54,744 acres of land for national forests in the White Mountains, Southern Appalachians, and Arkansas.

The largest tracts purchased are in Georgia, where the resumption of purchase work has been authorized by the commission. An aggregate area of 38,108 acres in Rabun, Union, and Townes Counties, scattered through 39 tracts, was approved for purchase at an average price of \$7.22 per acre.

In Alabama, in Lawrence and Winston Counties, 5,159 acres were approved at an average price of \$4.30; in North Carolina, in Macon and Buncombe Counties, 1,940 acres were approved at an average price of \$4.30 an acre; in Virginia, in Augusta and Shenandoah Counties, 1,381 acres were approved at an average price of \$4.36 an acre; in West Virginia, in Hardy County, 40 acres at an average price of \$7.00 an acre, and in New Hampshire, in Grafton and Coos Counties, 9.04 acres at an average price of \$6.68 an acre.

In Arkansas, 7,269 acres, located mainly in Polk, Pope, Johnson, and Garland Counties, were approved for purchase at an average price of \$3.61 per acre.

To date the National Forest Reservation Commission has approved for purchase 1,702,534 acres for national forest purposes in the 17 areas of eastern national forests.

HOW WOOD COMPARES WITH COAL IN HEATING VALUE

In heating value one standard cord of well-seasoned hickory, oak, beech, birch, hard maple, ash, elm, locust, or cherry wood is approximately equal to 1 ton (2,000 pounds) of anthracite coal, according to estimates by the Forest Service, United States Department of Agriculture. However, a cord and a half of soft maple and 2 cords of cedar, poplar, or basswood are required to give the same amount of heat.

One cord of mixed wood, well-seasoned, equals in heating value at least 1 ton of average grade bituminous coal.

THE USES OF WOOD

WOODEN ARTIFICIAL LIMBS

BY HU MAXWELL

Editor's Note.—This is the ninth story in a series of important and very valuable articles by Mr. Maxwell on wood and its uses. The series will thoroughly cover the various phases of the subject, from the beginnings in the forest through the processes of logging, lumbering, transportation and milling, considering in detail the whole field of the utilization and manufacture of wood.

THOSE who compile statistics of the artificial limb industry usually include crutches; and occasionally canes and surgeons' splints are likewise included. A similarity of purpose exists in all articles of this class, but there are several differences in the processes of manufacturing as well as in the materials used. Wood is common to all, but the different articles require woods of different kinds. There is less reason for including canes than crutches; for most canes are not employed by persons as an assistance in walking, but rather for the sake of fad or fashion; but crutches and artificial limbs are used by disabled persons exclusively. In consideration of

demand for crutches and limbs will continue long after peace shall again be restored.

The limbs wear out and crutches break and must be frequently renewed. The export of artificial limbs from this country is not large, neither are the imports. Shortly after the beginning of the present war, when it became apparent that many maimed men would return from the battlefields, limb manufacturers in the United States established branch houses in some of the European countries, ready to serve the unfortunates who might lose legs or arms. It is preferable but not absolutely necessary that the manufacturer of a limb shall make personal



TYPICAL WHITE WILLOW TREES

Nearly all of the white or English willow wood that furnishes wood material for artificial limbs grows in city parks and on road sides where the trees were planted for shade and ornament. The trunks are usually thick and short, and the larger they are the better the wood is. The photograph from which the above cut was made was taken in a Chicago park.

that fact, the present article will class crutches and false limbs in the same industry but will exclude canes. That is the treatment accorded the subject by the United States Forest Service.

The total bill of woods consumed annually for limbs, crutches, and splints in this country, according to government statistics, is 687,980 feet, board measure. That compilation was made prior to the beginning of the present war and represents an average consumption in normal times. Without doubt, the industry has grown much since, and many years must pass before it again falls as low as it was in recent times of peace; because the

measurements and supervise the fitting and adjustment. Several leading American manufacturers have established finishing factories in the allied countries. These factories are supplied with artificial limbs in quantities from headquarters in the United States. The fitting and finishing work on these limbs is done at the finishing factories, where each limb is adapted to the individual requirements of the wearer. The finished article has never been exported in quantities, nor is it practical to do so.

Some of the warring governments supply cheap legs for their crippled soldiers, but they are of iron, and little or no wood enters into their use. Possibly after



WOODEN LEG WITH JOINTS

This illustration gives a good idea of the shell and the internal mechanism of a wooden leg of the latest design. Nature is imitated as closely as possible, and the lightness of the limb is surprising. It weighs only a few pounds and there is not an ounce of superfluous material in it. From the catalogue of the Pomeroy Company, New York.

FACTORY-MADE PEGLEGS

Sometimes the pegleg without the ankle joint is preferred or is considered necessary, but the old club that was made on a turning lathe or with a drawing knife has been displaced by a wooden limb which is light, serviceable and artistic in appearance. Some of the modern patterns are shown in the above collection from the catalogue of a well-known manufacturer.



the war the various governments may furnish their soldiers with limbs as a part of the pension system. Following our Civil War, our government supplied 100,000 artificial limbs to disabled soldiers and sailors, and the practice of supplying them was kept up during several years. The Congress passed legislation in the fall of 1917 known as the War Risk Insurance Act. One of its many commendable features was a provision accompanied by an appropriation for the supplying of artificial limbs to amputated soldiers of this war. It is the policy of the War Risk Insurance Bureau, I am informed, to supply the permanent



HE CAN FIRE AN ENGINE

artificial limb as soon as the amputated man is prepared for its use.

Between 125 and 150 firms making limbs carry on business in this country. Some are large establishments employing factory methods and operating on a fairly extensive scale, while others are small, giving employment to only a few persons, and doing a large part of the work by hand. It is a business that can be carried on in a small way without calling for much capital, though it is capable of enlargement without limit.

The average life of an artificial limb is about eight years, and repairs are frequently necessary during that time, for accidents befall artificial members as frequently as those which nature provided the wearer, but with this difference, the limb which nature gives does not wear out, while the man-made substitute is a machine which is not guaranteed to bear its burden and do its work for four score years and ten. There are differences in these machines as there are in machinery of other kinds. Some are better than others. Each manufacturer persuades himself that his product is best, and he tries to persuade

A man with an artificial leg is not necessarily debarred from occupations which might be considered impossible. The accompanying pictures give scenes from real life, though rather rarely encountered. The power of the will has as much to do with it as the power of the wooden leg.

others that such is the case. More than one hundred and fifty patents have been issued on artificial limbs in this country, and nearly every patent is backed by an owner or agent whose business it is to push the article by all fair methods. That helps to account for the numerous claims of superiority by different manufacturers. Some of these claims are doubtless urged more strongly than is warranted by real merit; yet the fact cannot be disputed that many ingenious and valuable devices are in use and that frequent improvements are being made.

It remains a fact, none the less, that most manufactured limbs have their weak places and that not one has yet been invented that equals nature's own device. The joint is the hard part to imitate. The natural joint is a wonderful piece of mechanism and it defies all imitations. The manufactured product may have joints modeled after nature with the most painstaking care; yet the most enthusiastic manufacturer does not claim that he can make an ankle joint as good as the real article. The nearer it copies nature, the more complex it becomes and consequently the more liable it is to get out of order. Even the natural ankle is sometimes sprained and put out of commission for days or weeks at a time, and the artificial is still more liable to meet mishaps. A doctor may charge twenty-five dollars for repairing a displaced ankle



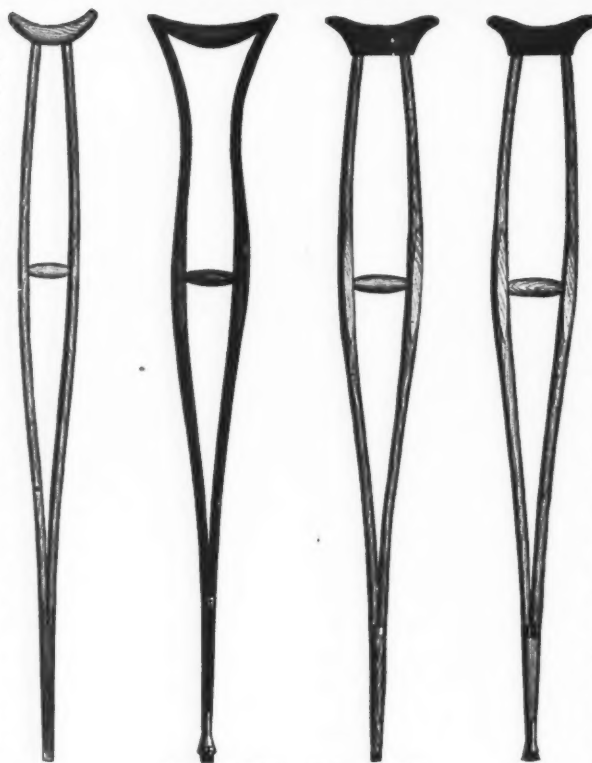
WOODEN LEGS MAY BE USED IN CLIMBING

bone; and it is no reflection on the manufactured article if it calls for repairs that cost money. Some such joints may cost twenty-five dollars in a year in repairs, or twice as much as the natural foot costs in shoes. A repair bill of that size, however, is declared to be excessive by the makers of some of the best artificial ankle joints. The case is said to be similar to that of an automobile which may go a long time without any cost for repairs, and then run into a streak of bad luck.

A high grade wooden limb consists of more parts than a casual observer would suppose, and most of the patents cover details rather than the general form of the limb. All efforts are directed toward imitating nature as nearly as possible in form and movement. So close is the imitation in some cases that the wearers of artificial

limbs conceal the fact from all except their most intimate friends. Some wearers of such imitations can play ball, climb ladders, enjoy hunting and fishing, skate, and in many other ways take part in the affairs of business and pleasure. The catalogues of manufacturers of wooden arms and legs contain so many testimonials from wearers who seem pleased with the substitutes, that the reader is inclined to doubt whether they should be classed with the unfortunate. Much more is heard of artificial legs than of arms. That is because the loss of a leg is a much more serious matter than the loss of an arm, and the one-legged man is at a greater disadvantage in the ordinary affairs of life than the man is who has only one arm.

The false limb is not a modern invention. No one knows when the first came into use, but they are mentioned in writings hundreds, even thousands of years old. The beginnings were doubt-



THE OLD RELIABLE CRUTCH

The crutch is considered to be an artificial limb and is so listed in statistics of manufacture. It has been called the first aid to the crippled. The article is made in several styles and the buyer may pay for style as well as for service.

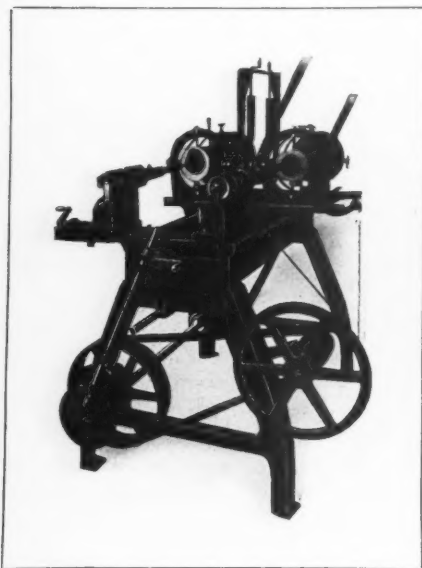
less crude make shifts. American Indians cut forked poles for crutches and other savages probably resorted to that or to other devices to assist cripples in getting over the ground. The crutch or the staff was the real invention and all that has followed may be considered as improvement and development. There are records of highly artistic arms made of wood centuries ago. It seems to have been more difficult to make a successful arm than a leg, and it is somewhat the same yet, but that is because an arm is required to perform more functions than a leg.

Some persons, on insufficient evidence, have made the claim that no

artificial arm is now produced that is as perfect as were some in existence centuries ago. That claim is based on written descriptions which are largely imaginary. A few ancient manufactured arms have come down to the present time, and are preserved in museums. Some of these arms are clever and ingenious, but they are not to be compared with the best product of the present time. They usually weigh twenty-five or thirty pounds, in contrast with the two pound weight of the best arm now made. According to some of the old writers, weight was desirable in an artificial limb, since the owner might want to use it as a weapon to knock out his foes in battle, and the heavier the better. That viewpoint is not wholly ancient, for a scene in a modern story has one of the characters in a Michigan frontier town using his

wooden leg as a club to quell a belligerent lumberjack.

Nearly any wooden leg or arm can be made to perform one or two functions very well, and that was what was aimed at by makers centuries ago; but it becomes quite another problem when the attempt is made to pro-



A LATHE UNIQUE IN ITS MECHANISM

There are lathes which shape gun stocks, shoe lasts, and wooden doll heads, but the above cut represents one even more specialized. It shapes the interior of wooden legs, down almost to millimeter measurements. Few machines equal it in accuracy of work. It was invented by the J. E. Hanger Artificial Limb Company, Washington, District of Columbia.



THE FIRST FACTORY OPERATION

This crudely shaped block of English willow is the raw material with which the artificial limb maker does his best work. It is the first stage in the process; but before it has advanced thus far, the wood has undergone many months of air seasoning, for the workman must not touch it until it is in perfect condition.

duce something that will take the place of nature's handiwork generally. The bones, flesh, tendons and cartilages, and particularly the nerves, of the natural limb do specialized work which the best substitutes can seldom equal.

The best kinds of artificial arms weigh from one to two and a half pounds; legs from four to seven pounds. The lightest are for small persons. In a few instances legs are manufactured for children less than two years old, and for persons

eighty or more. When limbs are fitted on a person who is growing rapidly, frequent changes are necessary.

The cost of limbs varies so widely that it is impossible to name an average; but the prices quoted in the catalogue of a well known manufacturer of these articles range downward from \$150. The size of the artificial limb does not govern the price so much as it is governed by the kind of workmanship employed in its manufacture and by the patented devices used. The rough material is not expensive. A few pounds of wood, a little leather, rubber, steel, and shellac constitute the materials, but the labor that forms and fits them is expensive and is responsible for the principal items of cost.

Different manufacturers advertise special features of their product and claim high value for certain devices. Competition is keen, and the unfortunate person in need of a limb has many offers from which to choose; but

there is not much difference in the range of prices for similar articles.

The cheapest and crudest artificial leg is the wooden peg which is strapped in place and can be made by any carpenter or turner for a few dollars. This is the historical peg that figures in chronicles, romances, and poetry. The comic supplement artists who illustrate Sunday papers equip the pirates and heroes with legs of that kind. The Dutch governor of New York, as Washington Irving described him, was better known by his peg leg than by any other possession or attribute; and a stanza in Hood's "Faithless Nelly Gray" is sometimes selected by authors of school grammars

to test the pupil's proficiency in parsing ambiguous syntax:

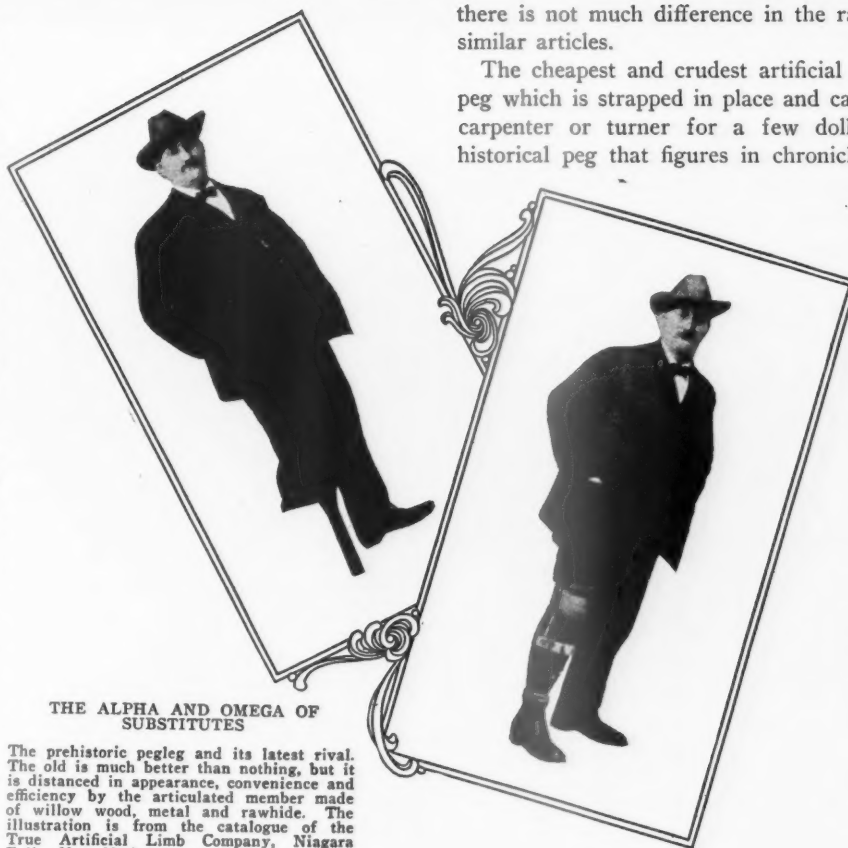
"The army surgeon made him limbs;

Said he, 'They 're only pegs,

But there 's as wooden members quite
As represent my legs.'"

The peg is practically indestructible. It has no springs to snap or joints to rattle, and time, wear, and tear make little impression on it.

There is no hand-made arm quite as simple and substantial as the pegleg; but there is a peg arm also, and it is equipped with a hook in place of a hand. A character in Dickens' "Dombey and Son" wore one. That was the old, cheap makeshift; but modern inventors have produced one with the hook equipment, and it is by no means a cheap makeshift. Among the high-class manufactures in this line is an arm equipped with two hooks operated by springs and bands, the forms and movements apparently having been suggested by the mandibles of a stag



THE ALPHA AND OMEGA OF
SUBSTITUTES

The prehistoric pegleg and its latest rival. The old is much better than nothing, but it is distanced in appearance, convenience and efficiency by the articulated member made of willow wood, metal and rawhide. The illustration is from the catalogue of the True Artificial Limb Company, Niagara Falls, New York.



THREE STYLES OF WOODEN LEGS

That on the left is a limb not extending above the knee; the next has the knee bearings, and the next is the artificial limb extending above the knee. Each is provided with its own peculiar and necessary mechanism and fittings to conform to differences in pattern. Photograph by courtesy of True Company.

beetle. The hinged hooks are so accurately adjusted that the wearer of the arm can use them in picking up a glass of water and drinking from it. When the hooks are not in use they may be concealed by slipping a hollow hand over them. This and other devices emphasize the skill, patience, and ingenuity of manufacturers in producing limbs as nearly as possible like the natural members.

Some controversy has arisen as to the origin of the word "cork" as applied to a limb. Most people are under the impression that the name implies that such limbs are made of cork, or that they are as light as cork. The latter meaning is reasonable, but the assumption that limbs are now made, or ever were made, of cork has no basis in fact. Cork is nothing more or less than the bark of a species of oak tree that grows in southwestern Europe and in northwestern Africa (*Quercus ilex*). It is too weak for use as artificial limbs, and if it were otherwise fit, it could not be had in pieces of sufficient size. The name of the limbs is said to have originated in a quite natural way, and refers to the town of Cork in Ireland where once they made artificial limbs of excellent quality. The town gave its name to the product.

In the manufacture of such limbs different materials are employed, rubber, leather, steel, felt, and wood, and

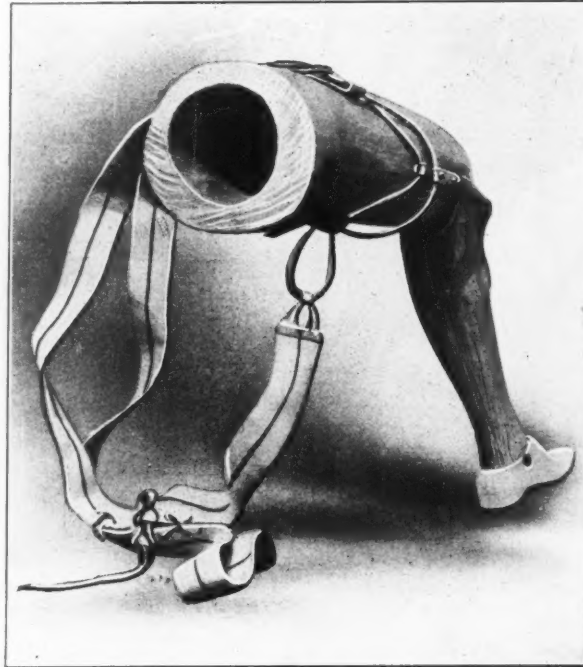
the most important of these is wood. More than one wood is serviceable, but there is one which is usually rated far superior to all the others, and it holds undisputed first place in the industry, though the government's published statistics apparently prove the contrary. These

statistics fail to make it clear that some of the woods shown in the figures are for crutches rather than for limbs proper. White or English willow (*Salix alba*) is the wood par excellence for manufactured limbs. It is frequently listed as red willow, but that is not strictly correct, for red willow is a different species, a native of this country, while white willow is foreign, though it has been so widely planted in the United States that it is plentiful in many regions.

White willow is essentially a town and highway tree. It occurs in parks, in yards, on street borders, and along highways where it casts delightful shade and forms a pleasing feature of the summer landscape. Being an open-ground tree, and usually not much crowded, it develops a short trunk and an enormous

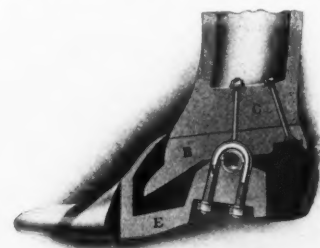
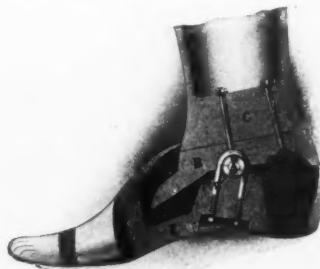
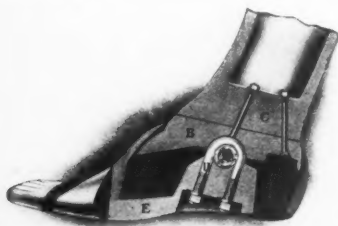
crown. The tree seldom furnishes more than one short sawlog, and the logs range in diameter from one to two and a half feet. Old trees may be three feet in diameter, and in extreme cases six feet. The larger the tree the better the wood for artificial limbs.

Thus it is that the supply of wood for artificial limbs



PROGRESSIVE STAGE IN LIMB MANUFACTURE

The blocks of willow wood have been roughly shaped and mounted in order to adjust the proportions preparatory to the final cutting and the finishing touches. Much of the work cannot be done by machinery, but must be perfected with carving tools used by hand. This photograph was obtained through the courtesy of Pomeroy Company, New York.



WOODEN FOOT IN ACTION AND AT REST

This illustration gives an idea of the articulation of the wooden foot and its action during the process of walking and standing still. The inventors have devoted their best thoughts to the perfection of an ankle joint which will not only act naturally, but will endure the severe strains to which it is subjected.



comes almost wholly from planted trees. Few of them were planted in expectation that they would ever come into market for lumber. They have never been regularly taken by lumbermen; but a few logs have been cut here and a few there when streets have been widened or parks cleared. The supply of willow wood from that source has generally been ample, but now, because of the war, the demand is much greater than it was formerly, and it may be anticipated that the search for suitable willow for limbs will continue for years, and no one who has trees of this wood should permit them to be destroyed but should try to dispose of them to manufacturers of limbs.

White willow that goes to factories often causes damage to saws and other tools that are employed in working it. That is done by metal in the wood. Such is a common fault with much wood that is cut from trees which have grown about residences and in the vicinity of barns and near fences. While such trees are growing they are



YUCCA PALM IN THE MOHAVE DESERT

The photograph of this strange tree was made available by the courtesy of the United States Forest Service. The scene is in southern California, where these uncouth trees, which look like specimens from the Carboniferous Age, are furnishing splints used by surgeons in setting broken bones. The equivalent of 40,000 board feet is cut annually.



RAW MATERIAL FOR SURGEONS' SPLINTS

A section of the trunk of the weird yucca palm is being prepared for the factory where it will be converted into sheets of veneer to be cut into splints for binding broken bones. These by tens of thousands are now being sent to Europe for use in the army hospitals. The sheets of wood look like lace and are as strong as horn. Photograph by the United States Forest Service.

apt to be made use of as fence posts to which to nail boards, or as posts on which to hang gates; or the planks which form sheds are nailed to them; or they may have been equipped with hammock hooks. The metal driven into the trunks remains there until the saws find it when the wood is passing through the mill or shop. The growth of a few years completely hides all trace of the metal until the logs are opened. Experienced sawmill operators do not like to handle timber that has grown in cities or towns or near barns or residences because of the hardware concealed in the wood.

White willow did not become the leading wood for limbs by any accidental choice. It was proved by trials and experience, and only after it was found to be the best was it admitted to

first place. It possesses certain characteristics that are wanted, and it has them in a higher degree than any other known wood. It is light in weight, a requisite which cannot be insisted upon too strongly; it is very tough, not easily split or splintered under blows and twists, and not apt to check or warp in process of seasoning. After it has become dry it shrinks and swells but little. The pores in the wood are very small and impurities are not readily absorbed. It cuts easily, and therefore lends itself readily to the shaving and whittling which the manufacturer must do in converting the rough billet into the finished limb. Some of the cutting is done by machinery, but much is hand work with special tools, in hollowing the inside and shaping the exterior. The limbs are hollow. They are thin shells, and willow wood is so tough and strong, in proportion to its weight that the shells can be whittled very thin. They are then covered with raw hide, the kind of leather that forms the heads of drums, and the final coat of varnish is applied to the leather. The necessary metal and other fastenings can be affixed securely to this thin shell.

The breaking of a wooden leg is a serious matter, though not so serious as the fracture of a bone of a natural leg, and it is less painful; yet some pain of a pecuniary kind may be occasioned by the knowledge that a broken willow leg may cost a hundred dollars in repairs.

The suggestion has been made that false limbs might be made of woods other than willow; and so they might be and so they have been. Willow is not the lightest wood in this country. A dozen others are as light or lighter; but lightness is not the sole quality to consider. If it were, the first place among American species would go to Missouri corkwood (*Leitneria floridana*), and tupelo roots would be available, and also the golden fig of Florida, or several of the cedars. But, on account of undesirable physical qualities, not one of these is a rival of white willow in the wooden limb industry.

Many attempts have been made to find substitutes for wood; not that cheaper material is wanted, but in some instances it is difficult to fit a wooden limb satisfactorily and other materials would be more convenient. That none of the substitutes has been wholly satisfactory is evident from the fact that wood continues to be the most widely used material for manufactured limbs. Gold has been mentioned among other substitutes, but perhaps reference to that precious metal in Thomas Hood's poem was not meant to be taken seriously. If gold were as

cheap as willow, it still would not often be employed for this work, because it is too heavy and too weak. Aluminum would be better than gold, but it has had little use, although it is claimed that the former German Emperor's withered arm has been concealed inside a hollow aluminum mechanism that passes for an arm.

Fashion has more to do with false arms and legs than might be supposed. Some wearers are as proud of theirs as smokers are of favorite pipes, or sportsmen of guns which break records, or fishermen of reels which land the largest and gamest fish. Some patrons of the limb factories buy new arms or legs nearly as regularly as they buy new clothes; not that the old are worn out, but fashion, as they think, demands new outfits at regular intervals. Besides, it is good foresight to have a new member ready for use if the old should become incapacitated by accident.

Crutches are with reason included in the limb industry, for both are put to the same use in assisting cripples to carry on the affairs of life; but the points common to the two products go little farther than the methods in which they are used. The processes of manufacture are different, so are the woods employed.

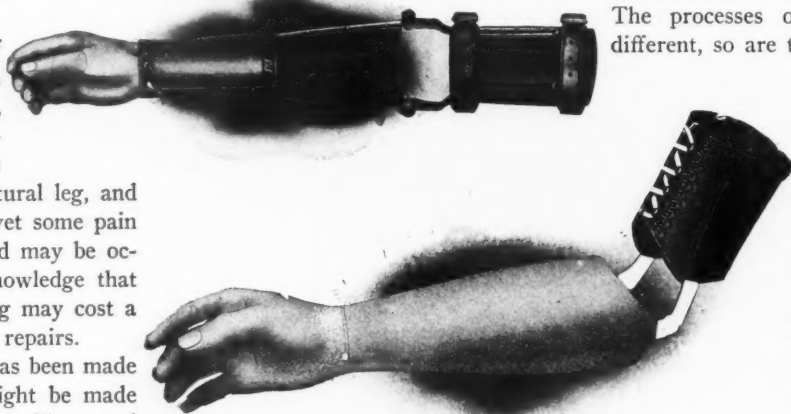
The crutch maker needs very hard and very strong woods, and weight is not objectionable; but the limb manufacturer must have light wood, yet it must be strong, and he has few species to choose from. The crutch maker has a pretty wide field of choice.

New Hampshire leads all other states in the pro-

duction of crutches so far as statistics show. Birch and maple, which are excellent woods for crutches, are abundant and of fine quality in New Hampshire. Choice woods like cherry, rosewood, and lancewood, find a place, the first two as handles or grips and as tops to fit under the wearer's arms, and lancewood, because of its strength, becomes the shaft. New Hampshire produces about 250,000 pairs of crutches a year. The best grades are made of sugar maple with rosewood handles.

If canes were admitted into the artificial limb industry, the number of woods to be listed, and the total quantity, would be much increased. Cane makers consume about 2,000,000 feet of wood a year, in addition to some woods which are never measured in feet, such as weichsel, bamboo, and nannyberry.

The wearing of artificial limbs is not restricted to any condition of life, to any size of persons, or to any age.



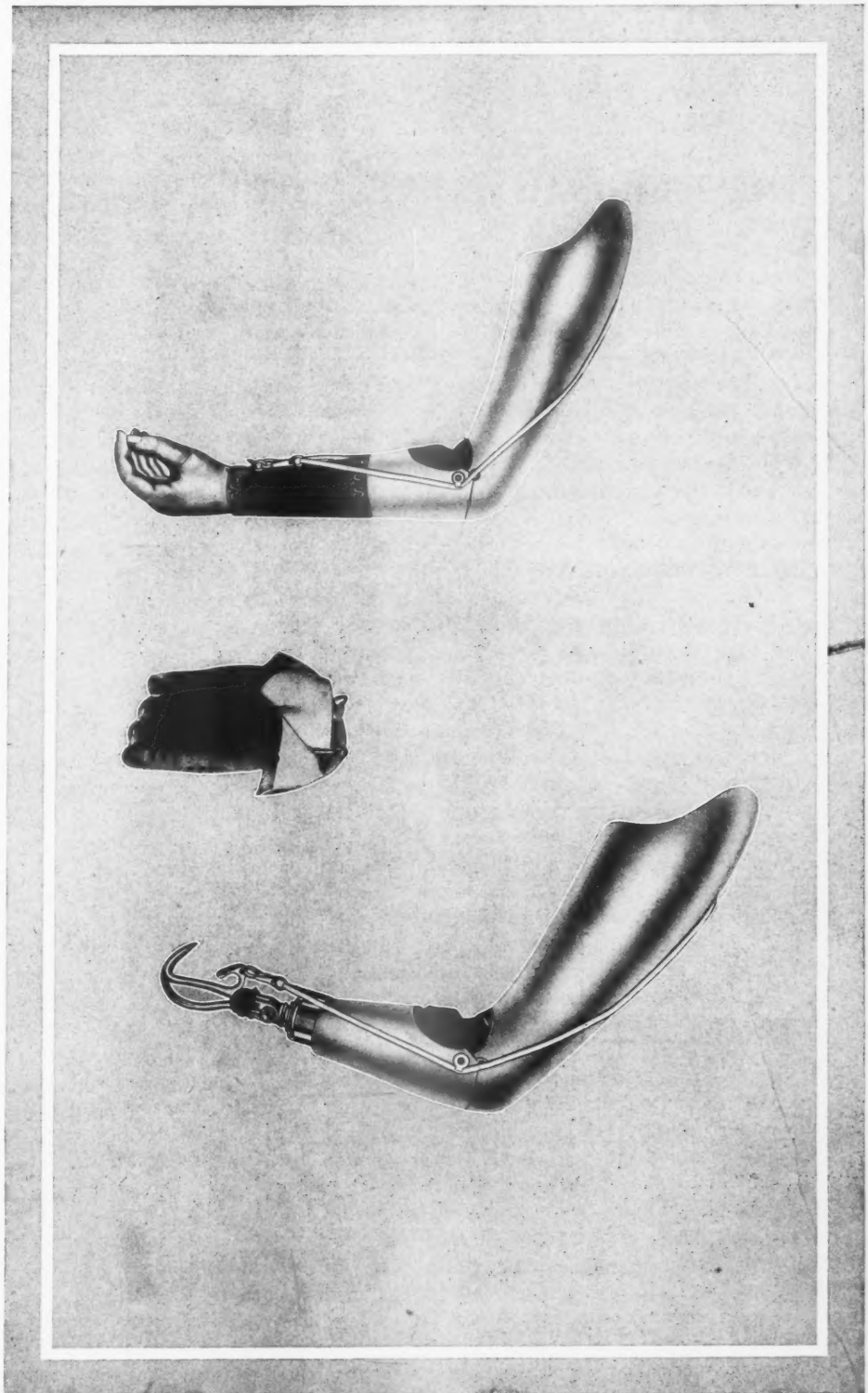
THE MECHANISM OF ARTIFICIAL ARMS

Inventors have worked faithfully on the problem of producing acceptable substitutes for the human arm, and the accompanying illustrations show some of the results of their genius and labor. The problem has many angles that must be taken into account, and many ideas have been successfully developed.

The unfortunate rich open their purses to buy the best that skill and experience can produce, and the poor man is able to purchase serviceable substitutes for lost members.

The surgeon's splint deserves a place in the industry. It is a wooden patch on nature's limb rather than a wooden substitute. Many woods can be worked into splints, but complete figures giving kinds and totals appear to be lacking; but one excellent wood has been listed. It is the yucca palm of California and Arizona, *Yucca mohavensis*. It is a peculiar tree, a hardwood that belongs to the lily family. It develops no annual growth rings, its trunk consisting of woody fibres and soft tissues. Splint makers reduce the trunk to veneers which are then cut in strips of the desired size. The strips look like lattice-work or coarse lace. The wood is very stiff, strong, and light, and is an ideal material for splints. The yucca is a desert tree. Its trunk may attain a diameter of a foot or more. Its dark, branches, and leaves are ragged, suggesting in appearance the extinct trees of the Carboniferous Age. Fortunately, a use has been found for the wood, other than as posts for sheep corrals near the water holes in the deserts where this palm ekes out its precarious existence. Nearly 40,000 feet, board measure, or ten times that amount if the surface of the veneer is measured, are yearly converted into splints for reducing broken bones.

Mention has been made of government statistics of the woods reported by the manufacturers of limbs and that in these figures the limbs, crutches, and surgeons'



splints are grouped in the same industry. It is possible to segregate the woods, with fair accuracy, according to their uses. The following table lists these woods

and the quantity of each used during an average year:

| | | |
|----------------|---------|------|
| Birch..... | 353,000 | feet |
| Maple..... | 147,000 | " |
| Willow..... | 56,170 | " |
| Hickory..... | 40,000 | " |
| Yucca..... | 39,800 | " |
| Lancewood..... | 30,000 | " |
| Rosewood..... | 10,000 | " |
| Cherry..... | 10,000 | " |
| Total..... | 686,980 | " |

The birch, maple, hickory, lancewood, rosewood, and cherry in this list are made into crutches; yucca is used for surgeons' splints, while the willow and basswood go to the limb makers. Perhaps some of the hickory is used for small pins in ankle and knee joints. Some manufacturers attach ligaments and springs to such pins.

(Editor's Note: AMERICAN FORESTRY MAGAZINE is indebted to the Hanger Artificial Limb Company, of Washington, for many of the illustrations in this article.)

THE NATIONAL ARMY AND TRAINING IN FORESTRY

BY JAMES W. TOUMEY, DIRECTOR YALE FOREST SCHOOL

IN THE rapid industrial progress of the United States during the past half century there has been an increased appreciation of the necessity for forest management if wood supplies are to be maintained in adequate amount for our future needs and vast areas of our non-agricultural lands be kept in productive condition instead of becoming areas of desolation and waste. Without scientific management woodlands rapidly deteriorate and lose their productive capacity, so much so that the yield of useful materials from them is reduced to one-third or even one-quarter that which they are capable of producing when well organized and managed.

The forests of the country embrace approximately 550 million acres or about 29 per cent of the total area. In order that the wood supply of the future may be adequate for our needs all of this vast area, with the exception of the comparatively small part capable of development for agricultural use must be maintained in forest and organized for protection and permanent economic management. Although the progress made by the U. S. Forest Service, the forestry departments of the several states, educational institutions for training in forestry and local forestry organizations has been considerable in recent years, as yet only a beginning has been made and we have a long way to go before there is at large a real appreciation of forestry and the need for its application on our absolute forest land, which is one of our great basic resources if this land is maintained in reasonable productivity and continues to perform its just function in our economic development.

Not only is there great present need for a wider knowledge of forestry and its application by those living on the land, due to the necessity for insuring a necessary future supply of wood but due also to the importance of vast supplies of timber in national defense. The world war has shown more clearly than ever before the dependence of modern warfare upon timber. The forest capital of France has been of prime importance in the defeat of the Central Powers. Modern war is a conflict between national resources brought into use by the contending armies. The country without these resources, of which wood is one, is defeated before the battle is begun.

The great and far reaching opportunity presented for industrial and technical education in the American army during the long period that must necessarily ensue be-

tween the declaration of peace and re-embarkation must be utilized to its fullest extent. The plan now in progress of organization under the auspices of the Y. M. C. A. is in the hands of a commission in whom the American people have the highest confidence. It is the function of this commission, assisted by eminent educators, to determine the character and extent of the facilities placed at the disposal of the soldiers of the American Army in France. In providing the facilities for education in the army forestry training should be given a conspicuous place.

In all probability when peace terms are signed there will be an American army in France of one and one-half million men or more. It will likely take many months to return these men to this country and fit them into industrial and other work. Of this number between five and six hundred thousand were recruited from the land, where they were engaged in the production of farm and forest crops and likely will want to return to the land after the war. Most of these men have some knowledge of agriculture but few have a real appreciation of forestry and the possibilities of its development in their own communities. It is believed if educational facilities in forestry are approved a considerable proportion of the army recruited from the land will avail themselves of the opportunity to gain a knowledge of the subject adequate to apply its principles to the future management of the woodlands in their respective communities. In the writer's judgment no equal opportunity has heretofore arisen to stimulate the practice of forestry in this country.

The inquiry naturally arises if forestry education is provided for those members of the National Army that desire it during the period between the declaration of peace and re-embarkation, can the instruction be made of such a nature when given in France that it can be applied in this country and be of real use to the returning soldiers? It is believed that the instruction in forestry should be definitely organized and for the greater portion of the soldiers electing this study, it should center in silviculture, namely, the methods of handling the forest in order to attain successful natural or artificial regeneration and the improvement of the stand through the various methods which add to the quality or yield of the product. Emphasis should be placed upon forest protection and there should be a course of lectures upon the place of forestry in our national life and in our economic

development. For the most part the instruction should be in the form of field work under personal supervision by practical foresters. In this connection it may be added that French forests, due to their long period under management, afford much better illustrations of the results of silvicultural treatment than forests in this country, none of which have been organized for forest management except in recent years. In the forests of France that have not been destroyed or seriously over cut or injured due to the war may be found every stage in the life of managed stands. The results of silvicultural operations executed in the past are expressed in the present condition of stands. For the above reasons selected French forests are admirable for demonstrating on the ground the results of every phase of silvicultural treatment.

The large numbers of American soldiers that will elect the study of forestry if opportunity is afforded will not only have a vast and far-reaching effect on forestry in this country but the work can be made to perform a large service in rehabilitating many of the forests in France that have been injured or destroyed by the war.

If the instruction in forestry provided for the army serves its best purpose it should consist largely of field work under supervision, where the men are taught the art of forestry through the actual performance of work in the woods. The field work necessary in the conduct of the training can be made not only of educational value but its importance to France should be fully appreciated. Not only can improvement work be carried out in forests now existing but many of those destroyed by war can be replanted as a part of the field work. As a practical illustration, if but 20,000 soldiers out of the one and one-half million or more men that will likely be in France at the close of hostilities should elect to study forestry prior to re-embarkation, this body of men in pursuit of their practical experience in forest planting could plant approximately 10 million trees in a single day and thus reestablish stands of timber on at least 8,000 acres of devastated France. It is assumed that the planting stock available in France for artificial regeneration is so limited in amount that it would be desirable to supplement it by suitable stock available from this country. Last spring the Pennsylvania Department of Forestry through the Governor of Pennsylvania offered to the French Government a gift of four million forest tree seedlings from the State Forest nurseries. It is believed that at least 10 million forest tree seedlings are available in the forest nurseries of eastern United States, many of which are suitable for planting in France. Those suitable for foreign use and growing in state or other publicly owned nurseries can very likely be secured for overseas use at little or no cost.

More than 1,400 American foresters are now in the United States Army in one capacity or another. Approximately one-half are graduates of forest schools or were students in forest schools when the United States entered the war. It is evident that if the instruction in forestry provided for American soldiers is organized with foresight and definitely planned for without delay

and the American foresters now in France organized into a teaching staff to take charge of the work at many centers as soon as peace is declared much can be accomplished of real value to the soldiers themselves and of great future value to this country. At the same time a vast work could be performed in the rehabilitation of French forests.

SALE OF OF SURPLUS FARM TIMBER ADDS TO CASH RETURN FROM LAND

TEN helps in marketing woodland products, summed up in the accompanying chart, should be carefully considered by those desiring to sell timber. These aim to bring the producer in touch with the consumer so as to market as direct as possible. High-grade logs of white oak, yellow poplar, red gum, ash, cherry, black walnut, etc., in most cases can be sold direct to the manufacturing plants, although located at considerable distances. Local wood-using plants usually buy in lots as small as wagon or truck load, but not less than a carload lot can be sold profitably for shipment.

In most sections of the South the farms have sufficient woodland for the best welfare of the farm, but in a few districts like the "black belt" and intensive tobacco grow-

TEN HELPS IN MARKETING WOODLAND PRODUCTS

1. Get prices for various wood products from as many sawmills and other wood-using plants as possible.
2. Before selling, consult neighbors who have sold timber and benefit from their experiences.
3. Investigate local timber requirements and prices. Your products may be worth more locally because transportation is saved.
4. Advertise in papers and otherwise secure outside competition.
5. Secure bids if practicable both by the lump and by log-scale measure.
6. Be sure that you are selling to responsible purchasers.
7. Get a reliable estimate of the amount and value of the material before selling.
8. Market the higher grades of timber and use the cheaper for farm purposes.
9. Remember that standing timber can wait over a period of low prices without rapid deterioration.
10. Use a written agreement in selling timber, especially if cutting is done by purchaser.

ing sections, the timber has been mostly cut, and owners are obliged to buy firewood and lumber, posts and rough timbers for the upkeep of their farms. Where there is an excess of wooded land and growing timber above the permanent needs of the farmer timber becomes an important product, to be sold in many cases from land cleared to make openings for more field crops or pasturage. The farmer's interest centers naturally in the conservation and disposal rather than the production of timber. Much of the grown timber was on the farm when the present occupant came into its possession. In the case of the ordinary field crops and live stock, however, which mature in from one to three years, production usually is the prime consideration.

CONTROL OF PRIVATE FOREST CUTTING

BY W. DARROW CLARK

PROFESSOR OF FORESTRY AT THE MASSACHUSETTS AGRICULTURAL COLLEGE

FOR the last two decades foresters and other advocates of forestry have talked and written abundantly on the various arguments favoring the cutting of forests in accordance with forestry principles, with a view to the future crop.

Are we not now offered the psychological time to pause, take account of results, and determine whether or not our past methods have been justified by these results?

So far as I am able to observe, the amount of privately owned forest land which has been cut in accordance with the teachings of forestry forms a very insignificant total when compared with the amount which has been cut in the same old "devil may care" way.

Although the writer does not possess the data necessary for competent judgment as to the results obtained on National Forest timber sales areas, yet he feels safe in assuming that in so far as they have been cut in accordance with the rules of the United States Forest Service, they have at least served in the nature of experimental cuttings made with a definite purpose and for obtaining definite results in the future crop. As such they will serve as stepping stones to better practice, while the cuttings on private lands can serve only in a haphazard way.

What, we may ask, is the reason for such a situation? The reason is both simple and apparent.

In the one case, the method of cutting was directed by Government experts. In the other case, the method of cutting was directed by the private owner, who very clearly lacks sufficient interest in the future condition of his forest possessions.

How, then, can the method of cutting on private lands be improved? Is the answer, "By Government Control?"

Certainly the current tendency is for the Government to step in and direct wherever private and public interests conflict.

Abstract principles affecting the rights of individuals have been suspended. Corporation owned railroad property has been taken over and is now being operated by the Government. Manufacturing plants and their output have been commandeered. The quantity of certain foods, and the quantity of fuel which the individual may consume has been limited. The amount of profits which may be made, and the amount made which may be re-

tained has been definitely limited. Verily, even men are drafted bodily and directed to do thus and so, and to go here and there. All this has been done for the welfare of the republic. Government direction of cutting on private lands will be in the direction of this tendency. Government ownership is not prerequisite. The United States Forest Service logically would be the directing center. The Eastern part of the country can be divided into districts, irrespective of State lines, similar to the western districts. A district office in charge of a district chief can be established in each eastern district, together with a corps of assistants. No cutting on private land would be permitted until the owner had made application to his district chief, and the chief in turn had specified the manner in which the cutting should proceed. In other words, the cutting would all be done under Government control just as is done on the National Forests.

Naturally, under this regime the office of the individual State Forester would become superfluous. In many cases there is little doubt that he would simply be taken over by the U. S. Forest Service. The State Forester would thus be freed from local political control, and accordingly he would be very much more independent in carrying out his policies for the best forest results. It might seem advisable in many cases to convert the State Forester's office into a State City Forester's office to direct shade tree and park work throughout the State. But these are the details. Is not the time ripe for some agitation as to the advisability of the adoption of this policy?

Let us have no misunderstanding as to what is the end sought, and what is the means to that end. Better conservation and reproduction of our forest resources is the end sought, and government control of all cutting is merely the means by which we may possibly attain it. It was never more apparent than now that the bone and sinew of a nation, its recuperative power, its power to come back after a devastating blow, lies largely in its natural resources. It behooves every man, woman and child of our nation to take heed of this fact. It is directly up to those who know what the present situation and tendency is to stand by their guns and to send this idea home to the people.

**WHEN YOU PLANT A MEMORIAL TREE WRITE AND TELL THE AMERICAN
FORESTRY ASSOCIATION, WASHINGTON, D. C.**

RENASCENCE OF THE MODERN MEETING-HOUSE

BY JOY WHEELER DOW

THERE is, at least, one bit of classic architecture that fits into the American landscape, perfectly.

It is the wooden, Colonial Meeting-house. Originally good in its conception, good in the honest application of American forestry to its lines and proportions, without the mistaken idea of counterfeiting stone-work, and invested now by three centuries of American history with irresistible personality and magnetism—who is not gladdened to see its spire and gilt cockerel shimmering afar in the glorious sunshine of America, as it

strange to say, there is no more danger of fire from the wiring and all our modern inventions which tamper with fire, and make insurance policies necessary even for those who dwell in monolithic concrete dwellings. The old Colonial dwellings rarely burned down. Then, there is the wide range of selection—different kinds of wood for the different parts of the building. Spruce and yellow pine are not the only framing material, although, white pine, I believe, is best for door and window casings, outside doors, cornices and mouldings.



A COLONIAL HOUSE IN SWITZERLAND

Gothic grammar correctly expressed in wood.

dominates the cluster of elms or maples of the village common in the middle distance of a picture of matchless rural scenery?

Besides these sentimental considerations, what kind of a building is more suitable for an all-the-year-round proposition in our land, than one constructed out of some kind of sound and time-resisting species of wood selected from our splendid native forests? A non-conductor of temperatures, a wooden building further insulated by back-plastering and double paper lining, is snug and warm in winter, cool in summer, while it harbors none of the insidious dampness which is apt to linger, at all times, in a house constructed of massive masonry; and

This should be leaded with a white lead base. Weatherboards, where there is an alternate choice of using cedar, cypress or some other wood, may be left entirely without paint, as was done in the Jacobean-Colonial dwelling called "Keepsake" illustrated in the March number of "American Forestry."

The first colonists had no paint, the few houses of that period remaining having withstood the vicissitudes of three hundred years without its help and for this reason it has always seemed to me, as a matter of personal choice, that it would be a good rule today never to stain or paint wood, obscuring its beautiful grain, if it can be avoided.

For the interior of our home, we may introduce the hardwoods—like oak or chestnut for the exposed ceiling timbers and partition timbers. Oak, maple and yellow pine play an important part for floors, only do not try to imitate the floors of bowling-alleys with excessively



THE EXTERIOR OF THE BUILDING

All Souls, In-The-East, Unitarian Universalist, and voted by the Architectural League of New York the ideal meeting-house of America.

narrow strips such as mill men often recommend in order to divide the inevitable shrinkages of their half-aged product as much as possible. Poplar is best, in this section of the country, for white paint and enamel trim, because the grain and color of the pieces are hard to match, while it is a soft wood requiring some protection. The Summit, New Jersey, Meeting-house illustrated, is trimmed with poplar, capped with birch rails. There are three-ply, built-up, birch doors, and a birch casing for the renaissance organ, all birch being cabinet finished, but without a particle of stain, depending solely upon time for deepening the tone values.

White paint is a bit harsh for the exterior of a meeting-house as rich in architectural detail as is this one, and in a city or large village, it soils too quickly and streaks horribly. There is, moreover, an indefinable charm imparted to Colonial buildings by soft browns and drabs. I cannot tell you why; but a subconsciousness suggests reminiscences of the subdued and grateful tones incident to the Italian travertine, as one reason, while another, possibly, is suggested by memories of the delightful belfry of old St. John's which presides over the docks of Portsmouth, New Hampshire, also the brown steeple of St. John's and St. Paul's, respectively, in New York City.

And then, there come to mind the splendid old mansions in the neighborhood of Benefit Street, in Providence, Rhode Island, and along Federal Street, in Salem, Massachusetts, all in brown color schemes, mostly monotonous, depending upon richness of detail for contrast and shadow. I may tell you, however, why the new Meeting-house at Summit was placed, apparently, with its back to the street. It was done for a certain and irresistible dramatic note in the setting that nothing else would produce. The theory of Orientation played no part.

One is little prepared for the religious perspective which greets one upon entering the Meeting-house from Waldron Avenue—the main entrance. People remark the high pulpit with its sounding-board, the lectern, the chancel, the altar over which it is easy for the imagination to descry a sanctuary lamp dimly burning. There is even a faint suspicion of incense in the atmosphere, which however, is nothing but a certain historic haze the architect of the building has artfully produced, rather than services in which acolytes have taken part. Conventional manners and reticence are likely to give way to the heart-to-heart question—

"And pray, what kind of a church is this, anyway?"

"It is the Unitarian Meeting-house."

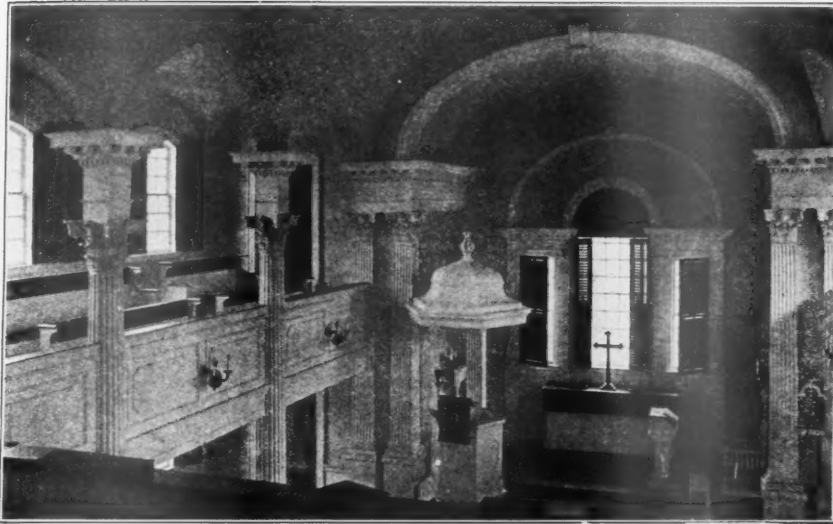
"What are you saying?"—and tableau of consternation!

Yes, it is difficult—very difficult for an architect to design a Unitarian Meeting-house. The requirements are so exacting. Strange as it may seem, it is the very symbols of some of the densest of religious superstition



THE NEW MEETING HOUSE

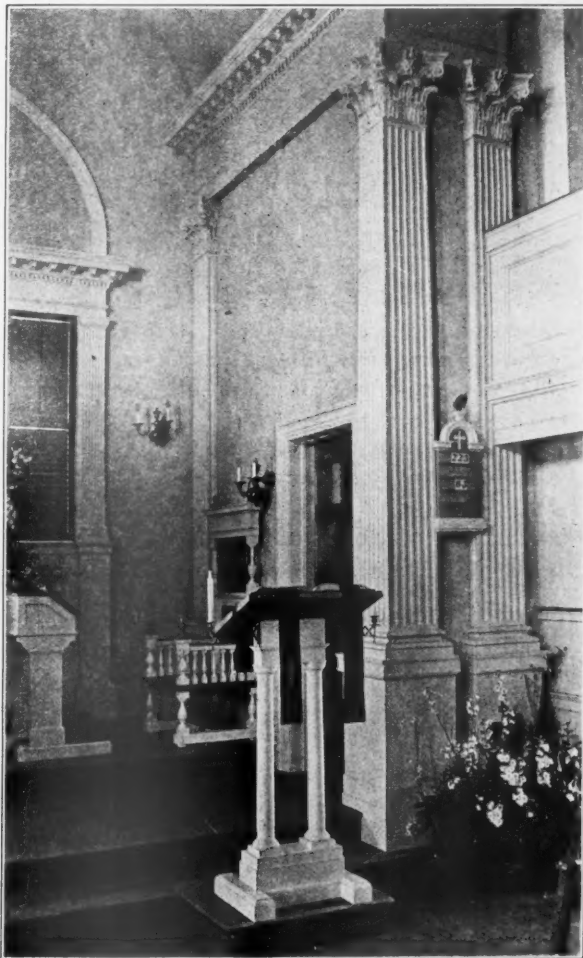
The old time hallowed atmosphere of the great portico.



THE INTERIOR FROM THE ORGAN LOFT

The feeling in this picture is hard to describe, but "homilies were in the air"—the quiet and peace of a blessed place.

that go toward making this Meeting-house so awfully fetching. They all help to make us kin with Christian worshippers of past centuries; and that is something the human mind must have—companionship. In a Unitarian



THE LECTERN

The simple dignity of the high pulpit with its sounding-board, the Renaissance lectern and the approach to the chancel.



THE HIGH PULPIT

The sheer beauty and purity of the decorative treatment of the interior of the new Meeting House is plainly felt in these two pictures.

meeting-house the wooden roof-tree is the best kind of an introduction to anyone you meet beneath it. You may claim anyone's acquaintance.

If you have committed some utterly unnecessary sin of the heart, you had better not come to church at all until the foul crime, whatever it be, is made good, or is "burnt and purged away," until, indeed, you may return to the old, square pew of your pious forefathers, with their wonted sense of receiving a kind of Marconigram from heaven, which deciphered reads—"Well done, good and faithful servant, enter thou into the joy of thy Lord." For a Unitarian meeting-house has neither nook nor cranny where an evil deed may bestow itself and say that it is safe. There are no expiatory waste-baskets. The dyed-in-the-wool Unitarian is always the son in the field, never the

returning prodigal—the son who says to his father—“Lo, these many years do I serve thee, neither transgressed I at any time thy commandment; and yet thou never gavest me a kid that I might merry with my friends” and goes to church rather for the comforting reassurance, in lieu of a surprise party and fatted calf—“Son, thou art ever with me, and all that I have is thine.”

Hence, the architect of a successful Unitarian meeting-house must, by subtle architectonic expression, set forth the scenario of the faith—that, in spite of the terrible handicap that has been placed upon poor human nature, even though God either cannot or will not be merciful to all men from the human standpoint, we can be, and intend to be, though indeed it demands, as Robert Louis Stevenson says on the illuminated cards—“all that a man has of fortitude and delicacy.”

The architect must make the world appear less tragic than it is, by a meeting-house at once distinctive and graceful, one whereby we may forget for the moment that there are some very disagreeable things in this beautiful world to conceal. He must have the atmosphere produced by agnes of Unitarian sacrifice and devotion. He wants to inclose some holy ground that those who habitually wear muddy shoes, may be seeking the

old-fashioned scraper at the threshold. He wants the feeling of great age and veneration in his building, for the confidence in our good deeds it inspires. He wants

the tranquility of twilight for the flood of memories and historic associations that come with it. He wants to make believe that the meeting-house is a restoration rather than a new building, and that it has already stood upon its site for a century or two, that the old square pews have remained the property of the different families for generations, still with enough and plenty to go 'round (even if there really isn't) universal respectability and bienséance. He wants to make believe that there is no grim want to dishearten us, are no skeletons to be ashamed of, no black sheep to dread, no don't-miss-anything relatives to scandalize, no militarists to organize, harness and drive the weak-minded, no pacifists, and that when Sunday mornnig comes again, we are free to repair to the same old pew where our father, grand-



THE ENTRANCE

This photograph reproduces faithfully the detail of the entrance—beautiful in its simplicity, homelike and inviting.

father and great-grandfather knelt, before us, glad to join in the responses and litanies as of yore—

“O God, who by Thy Son hast redeemed the world—”

And these are the spiritual needs we have endeavored to meet by the art of the new meeting-house.

SECRETARY HOUSTON URGES PROTECTION OF THE FORESTS

GREATER conservation of wood and wood products through protection of the raw material in the forests of the United States, is urged by Secretary Houston, of the Department of Agriculture. The secretary's annual report also advocates provisions for pushing more rapidly the improvement work in the forests, for a greater number of forest guards, and for earlier organization each fire season of the protective system.

It is declared that protection of the forests during the present year proved an exceptionally difficult task. An annual strain was imposed on an organization somewhat depleted in numbers and much weakened by the loss of many of its most experienced men. Added to this was the difficulty of securing good men for temporary ap-

pointment as guards during the fire season, and parties of men for fighting large fires. An unusually early and severe dry season caused the outbreak of serious fires before the summer protective organizations were fully ready.

The Department declares that some embarrassment in meeting the situation was caused by the failure of the annual appropriation act to pass Congress until after the fire season was virtually over. Relief was furnished by the President, who placed \$1,000,000 at the Secretary's disposal as a loan from the President's emergency fund. It may be necessary, the Secretary says, to seek from Congress again a deficiency appropriation of \$750,000.

ALPHABET GROWN ON TREES

BY H. E. ZIMMERMAN

IN the course of a number of years Mr. E. A. Miles, of Clifton Springs, New York, has collected one of the most unique alphabets in existence. In addition to the letters of the alphabet a complete set of numerals was also collected. The numerals and letters were all cut from trees, the numerals only having been found in the vicinity of Clifton Springs. There is but one root in the collection. In no instance have the letters or numerals been twisted into their present shape. They grew that way naturally. The letters are from the following places: A from Oshawa, Canada; B from Banff, Canada; C from near the summit of Mt. Tamalpais, California; D from Erie County, New York; E from Marilla, New York; F from Great Falls of the Potomac, near Washington, D. C.; G near Attica, New York; H near Clifton Springs,



NATURAL LETTERS AND NUMERALS

Formations from trees and shrubs growing on battlefields and places of historic interest in the United States and Canada, making a complete alphabet and numerals.

New York (this letter is the only one formed from a root); I from grounds near the former home of William A. Wheeler, Malone, New York, former Vice-President of the United States; J from Grand Canyon of the Colorado, Arizona; K near Attica, New York; L from Lunday's Lane battlefield, Ontario, Canada; M near Attica, New York, while walking with his mother, a striking coincidence indeed, when it is remembered that the word "mother" begins with an "M"; N, which was the first one discovered, was found near Clifton Springs, New York; O and P were also found there; Q came from near the top of Mt. Lowe, California; R from near the Parliament buildings, Toronto, Canada; S near Clifton Springs, New York. On a visit to the tomb of Lincoln, Springfield, Illinois, Mr. Miles saw a gentleman trimming a tree near Lincoln's tomb. In one of the small branches cut away Mr. Miles saw a well-formed letter T. He got it for the mere asking. U is from Clifton Springs, New York; V from Plains of Abraham, Quebec, Canada, where Wolf died; W near Attica, New York; X on Little Roundtop, Gettysburg, Pennsylvania; Y in the vicinity of Petersburg, Virginia, where the well-known tunnel was exploded in the Civil War, and Z near Attica, New York.

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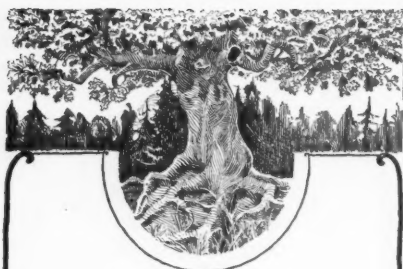
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FRAME HOUSES FOR FRANCE AND BELGIUM.

NOW is the time to promote sentiment for the frame house in France and Belgium, according to R. S. Whiting, Architectural Engineer of the National Lumber Manufacturers' Association. He points out that the people of these countries for hundreds of years have lived in houses built of stone, and know nothing of the utility and beauty of the frame home as it is known in America.

Mr. Whiting declares he is doubtful as to whether the French and Belgians will go back to the stone houses and he sees a chance for American lumbermen to inaugurate such a wood building propaganda that the people over there will learn to want the frame house.

Mr. Whiting suggests that architects in the United States who are favorable to wood construction should be immediately put to work on the task of studying French and Belgian conditions, in order to devise the best frame home for them along lines that meet their own ideas of what a home should be.

LUMBERMEN WILL AID IN RECONSTRUCTION.

THE lumbermen of the United States have pledged themselves to co-operate with all other industries and with the agencies of the Government in the reconstruction work which confronts the nation as the result of the World War. This was the decision reached at the conference held at Chicago under the auspices of the National Lumber Manufacturers Association. The sessions were participated in by representative lumber manufacturers from all sections of the United States and by organizations of lumber wholesalers and retailers.

An intimate discussion of the problems which are yet to be solved, before the country returns to normal working conditions, was the main feature of the conference. All phases of the situation were gone into and the net result was a definite program which is expected to be carried out.

President John H. Kirby of the National Lumber Manufacturers' Association declared that the conference will have far reaching effects upon the industry. The absolute harmony of purpose which prevailed and the definite plans which were adopted, he declared, were a guaranty that the industry would be found working alongside of all others in the reconstruction program for the nation.

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CANADIAN DEPARTMENT

BY ELLWOOD WILSON

PRESIDENT, CANADIAN SOCIETY OF FOREST ENGINEERS

THE forest protective associations in the Province of Quebec are keeping up their record for progress and The St. Maurice Association has decided to buy two flying boats and their equipment for use during the coming season. A committee has been appointed and tenders have been asked for. Stations for housing the machines will be built together with a centrally located machine shop for the repair of the Association's mechanical equipment, which now consists of railway gasoline speeders, automobiles, motorcycles and motor driven pumps. The motorcycles have proved a very marked success during the past season. The usual type was employed except that they were geared down and an especially heavy front fork was used. These machines can go over the roughest roads, they can carry in the side-car a motor driven pump with 600 feet of hose and are much more economical to operate than automobiles.

The St. Maurice Association has completed its season's work, having extinguished seventy-four fires which burnt over an area of 3,443 acres, or .041 of 1 per cent of the area patrolled. The total cost was 7-20 of a cent per acre and the total cost of extinguishing fires which required extra labor besides that of a ranger was \$936. Although wages and equipment cost more than in previous years the assessment per acre was not raised.

Mr. D. C. A. Galarneau, late forester for Algoma Central Railroad, has accepted a position with the St. Maurice Paper Company of Three Rivers. Professional foresters are proving their worth to the big paper and pulp companies.

On December 10th a forestry conference was held by the Canadian Forestry Association and the Members of the Government of Nova Scotia. It is hoped that as a result of this meeting a Forest Service along the lines of that lately established in New Brunswick will result. Such a service is badly needed and will be a great asset for the Province and will bring it into line with development in the rest of the Dominion.

Among the cause of fires in one of our Provinces we find "Campers and Tourists" and the list of fires attributed to them is quite large. Unfortunately a large number of these are Americans, and the writer takes this opportunity of calling the attention of all our friends who visit this side of the line in the summer to visit the

beautiful north country to the damage they do thoughtlessly. It is realized that we have only to direct attention to this matter to ensure its absolute elimination. The greatest offence is in failing to extinguish camp fires.

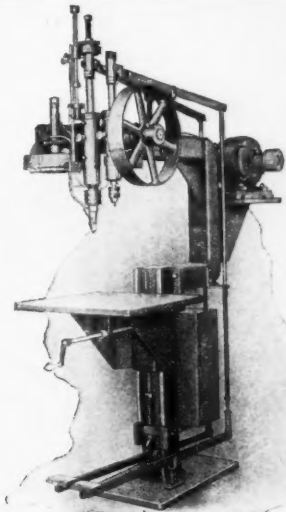
Next year the Canadian Forestry Journal will appear in a new dress and in enlarged and improved form. The Canadian Forestry Association is rapidly growing in membership and influence and its field of usefulness is constantly broadening.

Owing to the closing of munition factories the amount of labor available for woods operations has been somewhat increased and the outlook for normal production somewhat bettered. However the cut of both lumber and pulpwood is likely to be less than usual.

The plans for the opening of a new Forest Products Laboratory in British Columbia are progressing favorably and it will soon be under way. The Dominion Government will co-operate with the University of British Columbia in its installation.

The Canadian Government has started a five months course in Forestry at the University of British Columbia for returned soldiers, to fit them for rangers and for Government work. Mr. E. J. Hanzlik will be in charge of the work. The course opened November 1st and will continue until March 31st. This is a most excellent idea as the crying need has been in Canada for competent men to fill ranger positions. It is to be hoped that something of the kind can be undertaken in the East.

The work done by the new Fire Protection Service in Ontario during the past season has been excellent and shows great improvement over previous conditions. The organization is now complete and in fine running order. The equipment is complete and the system of supervision and reports excellent. There is still great danger from the new settlers in the "clay belt" owing to the rapid clearing of large areas of land. The permit system is working well, but so many fires for clearing are necessary that their rigid control is very difficult. The time has come when fire protective agencies, Government or co-operative, must take some steps toward themselves burning debris for settlers and loggers, simply as a preventive measure. If slash burning could be undertaken by such agencies instead of being left to the settler and the lumberman a

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"cutting assembling costs in two or even better"—(H. C. White Kiddie-Kar).

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great saving in the cost of extinguishing fires would be accomplished; and, as the cost of this work would be charged to protection instead of to logging operations, the objection of the Woodlands Departments to cleaning up the woods would disappear. It is fairly certain that if all logging slash was burnt after the operations were finished and before the danger season arrived, forest fires would almost disappear. Fires in virgin stands are comparatively rare under present protective measures. The great majority occur in cut-over land and on old burns, and these fires are extremely difficult to fight and spread rapidly over large areas. Some work along these lines will probably be undertaken next season as an experiment.

BOOKS ON FORESTRY

AMERICAN FORESTRY will publish each month, for the benefit of those who wish books on forestry, a list of titles, authors, and prices of such books. These may be ordered through the American Forestry Association, Washington, D. C. Prices are by mail or express prepaid.*

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TWO of the outstanding results of the recent Lumber Congress in Chicago are the renewal of peace time activity in the lumber industry, and the apparent determination of manufacturers of this product that wood as a construction material shall become known in all quarters of the earth.

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In this connection, it is announced, the National Lumber Manufacturers Association has had compiled by experts pamphlets containing valuable data about all branches of the lumber industry.

BOOK REVIEWS

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IMPROVEMENT OF FORESTS

Providence Journal

The question of more and better highways in the Adirondack region is of particular interest to the motor fraternity. Touring autoists are especially interested in having the existing roads improved and new ones developed, suggests Eugene M. Travis, New York State Comptroller. The welfare of these travellers is intimately bound up with the increased accessibility for tourists, campers and settlers of the entire Adirondacks. The work of protecting the forests against fire is greatly facilitated by improved roads, enabling the prompt mobilization of men to fight fire.

OREGON TREES DISEASED

Portland Oregonian

Fir trees along the Columbia River Highway, which are turning brown, as though seared by fire, according to foresters of the United States Forest Service, are not dying, but are merely suffering from a Spring disease something like the grippe, which every spring or two attacks Douglas fir growing where it is subject to the dry, cold east winds, which sweep down the Columbia River Gorge. This rather unique local disease of the Douglas fir was recently named "parch blight" by Thornton T. Munger of the Portland forestry office.

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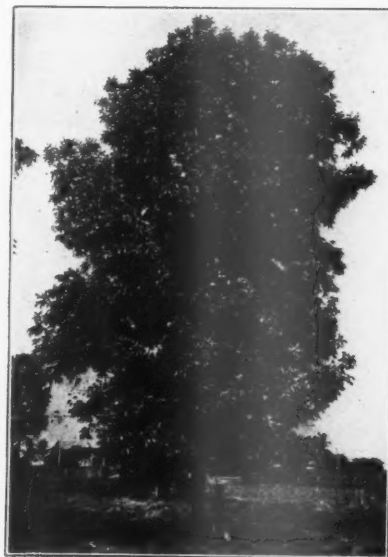
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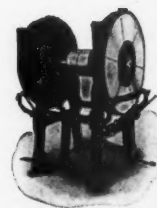
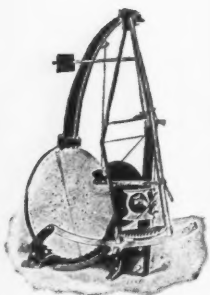
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